# MENTAL RETARDATION ABSTRACTS

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*Acta Neuropathologica*
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*American Journal of Psychiatry*
*American Journal of Sociology*
*American Sociological Review*
*Biologia Neonatorum*
*British Journal of Psychology*
*British Journal of Social & Clinical Psychology*
*British Medical Journal*
*California Mental Health Research Digest*
*Canadian Medical Association Journal*
*Child Development*
*Developmental Medicine & Child Neurology*
*Dissertation Abstracts*
*Education and Training of Mentally Retarded*
*German Medical Monthly*
*Helvetica Paediatrica Acta*
*International Journal of Neuropsychiatry*
*Journal of Applied Behavior Analysis*
*Journal of Clinical Endocrinology and Metabolism*
*Journal of Comparative and Physiological Psychology*
*Journal of Consulting and Clinical Psychology*
*Journal of Educational Psychology*
*Journal of Experimental Psychology*
*Journal of Medical Genetics*
*Journal of the American Medical Association*
*Journal of the Experimental Analysis of Behavior*
*Lancet*
*New England Journal of Medicine*
*Nursing Research*
*Panminerva Medica*
*Perceptual and Motor Skills*
*Psychological Bulletin*
*Psychological Monographs*
*Psychological Record*
*Psychological Reports*
*Psychological Review*
*Rehabilitation Counseling Bulletin*
*Rehabilitation Literature*
*Science*
*Training School Bulletin*

# LEAD POISONING AND MENTAL RETARDATION:

# A SELECTED BIBLIOGRAPHY

Edward Leyman

Each year, in the United States and other nations, lead poisoning cases continue to cause death, mental retardation, cerebral palsy, epilepsy, and other disorders, with children 1 to 6 years of age in slum areas the most likely victims. Despite the fact that a great deal is already known about the etiology, pathogenesis, and epidemiology of lead intoxication, it remains a health problem of grave concern. The Surgeon General of the U.S. Public Health Service has underscored its urgency in a 1971 policy statement containing guidelines, with recommended screening programs, for the detection and treatment of lead poisoning.

A comprehensive review prepared by Jane S. Lin-Fu set forth available evidence concerning the etiology, pathogenesis, and epidemiology of lead poisoning in 1967.* The present bibliography lists citations of selected journal articles and other publications that have appeared since the publication of Dr. Lin-Fu's review. In the selection process, primary emphasis was placed on papers dealing with the neurological sequelae of lead poisoning.

ALPERT, J.J.; BEREAULT, H.J.; FRIEND, W.K.; HARRIS, V.G.; SCHERZ, R.G.; SEMSCH, R.D.; SMITH, H.D.; & COLEMAN, A.B. Prevention, diagnosis, and treatment of lead poisoning in childhood. *Pediatrics*, 44(2):291-298, 1969.

Lead poisoning in childhood occurs most frequently in deteriorated housing, where up to 25% of the children have absorbed potentially dangerous quantities of lead and up to 5% have clinical symptoms of lead intoxication.

BACON, A.P.C.; FROOME, K.; GENT, A.E.; COOKE, T.K.; & SOWERBY, P. Lead poisoning from drinking soft water. *Lancet*, 1:264-266, 1967.

Three cases of lead poisoning are described, in one of which the diagnosis had been missed for 12 years. In each case the cause was long-term ingestion of soft water which had eroded lead from lead pipes bringing water to houses.

BALTIMORE, C.L.; & MEYER, R.J. A study of storage, child behavioral traits, and mothers' knowledge of toxicology in 52 poisoned families and 52 comparison families. *Pediatrics*, 42(2):312-317, 1968.

Factors contributing to accidental poisoning in children were evaluated by selecting cases of poisoned children from 52 families in a well-defined population in Albemarle County, Virginia. An equal number of neighboring families, with no history of accidental poisoning, were selected for comparison.

BARLTROP, D.; & KILLALA, N.J.P. Factors influencing exposure of children to lead. *Archives of Disease in Childhood*, 44(236):476-479, 1969.

Paint samples in homes of 103 children in London were analyzed to determine factors influencing lead poisoning in children and to aid in prevention of this condition.

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*LIN-FU, JANE S. Lead poisoning in children. (Children's Bureau Publication No. 452, 1967.) Washington, D.C., Superintendent of Documents, U.S. Government Printing Office, 1967, 25p.

BICKNELL, J. Selective pica and lead poisoning in a severely subnormal child. *Journal of Mental Deficiency Research*, 11(4):278-281, 1967.

Chronic lead poisoning resulting from pica was studied in 65 retarded children to determine whether high intake of lead causes further mental deterioration. In the case history reported, the mentally subnormal child with severe chronic lead intoxication and persistently raised blood lead levels showed no signs of mental deterioration and no neurological abnormalities.

BICKNELL, J.; CLAYTON, B.E.; & DELVES, H.T. Lead in mentally retarded children. *Journal of Mental Deficiency Research*, 12(4):282-292, 1968.

From a population of hospitalized severely subnormal children in long-term care, three groups were selected: with pica, physically handicapped without pica, and mobile children without pica. Excessive ingestion of lead was shown in approximately 70% of subjects in the pica group. Pica appears to be more common in the disturbed retarded child and may be both selective and highly motivated even with a low mental age.

BLANKSMA, L.A.; SACHS, H.K.; MURRAY, E.F.; & O'CONNELL, M.J. Incidence of high blood lead levels in Chicago children. *Pediatrics*, 44(5, Part 1):661-667, 1969.

Results are presented of the 1967 and 1968 Chicago Board of Health mass-screening of 68,744 slum area children to detect lead poisoning by atomic absorption spectroscopy.

CHAREST, S.; COHEN, G.J.; LOURIE, R.S.; & ANDERSON, D. Community aspects of lead intoxication in children. *Clinical Proceedings of the Children's Hospital of the District of Columbia*, 25(10):308-310, 1969.

Programs should be developed to increase parental awareness of lead contamination in the home, children's behavioral patterns, and the implications of pica.

Children with hidden lead poisoning caught by their hair. *Medical World News*, 9(34):32-33, 1968.

An estimated 25 hidden cases of lead poisoning may occur for each of the 12 to 16 thousand symptomatic cases reported annually in the United States, and brain damage may also occur in subclinical cases. Existing tests are often ineffective as screening methods. In one newer technique, hair samples are weighed and measured then digested in acids and put through an atomic absorption spectrophotometer. Since hair growth is fairly constant, time and duration of exposure to excess lead can be estimated.

CHISHOLM, J.J., JR. Increased lead absorption: Toxicological considerations. *Pediatrics*, 48(3):349-352, 1971.

U.S. Public Health Service guidelines for the management of children with lead absorption are discussed. Some of the thresholds for various significant adverse toxicological effects of excessive lead absorption may in the future be defined more closely through careful attention to dose-response relationships in studies on experimental animal systems.

CHISHOLM, J.J., JR.; & KAPLAN, E. Lead poisoning in childhood--Comprehensive management and prevention. *Journal of Pediatrics*, 73(6):942-950, 1968.

Experience in some large cities has shown that an effective program for the prevention and treatment of childhood lead intoxication depends on the coordinated efforts of the local health department, pediatricians, medical social workers, and child guidance workers.

CHRISTOPHERS, A.J. Does Sydney lead in the diagnosis of lead poisoning in children? *Australian Pediatric Journal*, 5(1):36-37, 1969.

A much larger total of diagnoses of lead poisoning in Sydney (42) as compared with other state capitals (7) may be due to a difference in diagnostic criteria or to the use of screening tests.

CROME, L.; & STERN, J. Post-natal causes of mental retardation: General considerations. *The Pathology of Mental Retardation*. London, J.A. Chuchill, 1967, 64-94.

Lead poisoning ranks as one of 65 known causes of post-natal MR.

CRUTCHER, J.C. Lead intoxication and alcoholism: A diagnostic dilemma. *Journal of the Medical Association of Georgia*, 56:1-4, 1967.

Lead contamination of whiskey from illegal stills has caused clinically significant lead poisoning in individuals living in rural districts. Diagnosis of the condition is complicated by the fact that chronic drinkers of alcohol present other symptoms that can be confused with effects due solely to lead salts.

Diagnosis of inorganic lead poisoning: A statement. *British Medical Journal*, No. 5629: 501, 1968.

Diagnosis of lead poisoning should be based on clinical findings supported by biochemical evidence of excessive lead absorption and, if possible, by evidence of unusual exposure.

FELDMEN, F.; LICHTMAN, H.C.; ORANSKY, S.; ANA, E.S.; & REISER, L. Serum β-aminolevulinic acid in plumbism. *Journal of Pediatrics*, 74(6):917-923, 1969.

Blood lead and serum β-aminolevulinic acid (β-ALA) levels were determined in groups of children (CA 1-4 yrs) with increased lead absorption (16 children), lead intoxication (16 children), or lead encephalopathy (7 children). Determination of serum β-ALA levels appears to be a sensitive way to differentiate between intoxicated children and those only exposed to increased amounts of lead.

FREEMAN, R. Chronic lead poisoning in children: A review of 90 children diagnosed in Sydney, 1948-1967. *Australian Pediatric Journal*, 5(1):27-35, 1969.

Data on 90 children from New South Wales for a period of 20 years indicated that lead poisoning was responsible for 11 deaths as well as severe neurological or renal problems in 30% of the group.

GOYER, R.A. The renal tubule in lead poisoning: I. Mitochondrial swelling and aminoaciduria. *Laboratory Investigation*, 19(1): 71-77, 1968.

Lead acetate fed to 13 rats for 20 weeks produced mitochondrial swelling and intranuclear inclusions in their renal proximal convoluted tubule cells, as well as generalized aminoaciduria.

GOYER, R.A.; KRALL, A.; & KIMBALL, J.P. The renal tubule in lead poisoning: II. *In vitro* studies of mitochondrial structure and function. *Laboratory Investigation*, 19(1): 78-83, 1968.

The mitochondria of the renal proximal convoluted tubule cells from rats fed a diet containing lead for 6 weeks showed a decreased respiratory rate and partial uncoupling of oxidative phosphorylation which was partially reversed by ethylenediaminetetraacetic acid (EDTA).

KLEIN, M; NAMER, R.; HARPUR, E.; & CORBIN, R. Earthenware containers as a source of fatal lead poisoning. *New England Journal of Medicine*, 283(13):669-672, 1970.

Two young children suffered lead poisoning as a result of drinking juice stored in a modern handmade earthenware jug. One of the children died. Subsequent testing of 264 contemporary earthenware glaze surfaces revealed that 50% released sufficient lead to make them unsafe for culinary use.

KOPITO, L.; BRILEY, A.M.; & SHWACHMAN, H. Chronic plumbism in children: Diagnosis by hair analysis. *Journal of the American Medical Association*, 209(2):243-248, 1969.

Determination of lead in scalp hair is a valuable diagnostic aid in chronic or mild lead intoxication, particularly when the other clinical or laboratory evidence is of questionable diagnostic quality, and may provide a practical means for finding small children who have been exposed to lead.

LAMPERT, P.W.; & SCHOCHET, S.S., JR. Demyelination in lead neuropathy: Electron microscopic studies. *Journal of Neuropathology & Experimental Neurology*, 27(4):527-545, 1968.

Chronic lead poisoning neuropathy was investigated by electron microscopy in an experiment utilizing rats fed 4% lead carbonate in their diet for 2 to 12 months.

LIN-FU, J.S. Childhood lead poisoning--An eradicable disease. *Children*, 17(1):2-9, 1970.

As a long-term goal, childhood lead poisoning can be eradicated by slum clearance and urban renewal. However, lead poisoning can be substantially reduced through education, early detection, treatment and follow-up programs. Mass media should point out the dangers of eating paint and mass screening programs should be instituted in slum areas.

MILLAR, J.A.; BATTISTINI, V.; CUMMING, R.L.; CARSWELL, F.; & GOLDBERG, A. Lead and β-aminolaevulinic acid dehydratase levels in mentally retarded children and in lead-poisoned suckling rats. *Lancet*, 2(7675):695-698, 1970.

There has been controversy over an association between elevated blood-lead levels in children and mental deficiency. The results of this study suggest that even modest elevations of blood-lead may be associated with biochemical abnormalities in the child brain.

MIRANDO, E.H.; & GOMEZ, M. Lead poisoning in childhood in Ceylon. *Archives of Disease in Childhood*, 42(226):579-582, 1967.

Lead poisoning was diagnosed in 12 Ceylonese children--many of whom resided where lead contamination was prominent in the immediate surroundings as a result of commercial activities.

OBERLE, N.W. Lead poisoning: A preventable childhood disease of the slums. *Science*, 165(3897):991-992, 1969.

As many as 225,000 children in the United States may have abnormally high blood lead levels. Brain damage occurs in 25% of the children, and if they have lead poisoning a second time, the chance of brain damage increases to almost 100%. The long-term solution is to remove old leaded paint or to replace slum housing.

PITT, D.; CHAKANOVSKIS, J.; McCROHAN, M.; ROBOZ, P.; & WIENER, S. Lead poisoning in retarded children. *Australian Journal of Mental Retardation*, 1(2):58-60, 1970.

Results of 3 studies of lead poisoning in MR children were mostly negative but indicate that primary lead intoxication is an occasional cause of MR.

PUBLIC HEALTH SERVICE. Medical aspects of childhood lead poisoning. *Pediatrics*, 48(3):464-468, 1971.

Guidelines have been approved by the Surgeon General, U.S. Public Health Service, for the detection and treatment of lead poisoning in children. The Bureau of Community Environmental Management, Department of Health, Education, and Welfare, is the agency designated to assist in the development and implementation of programs for the control of lead poisoning in children.

RENNERT, O.M.; WEINER, P.; & MADDEN, J. Asymptomatic lead poisoning in 85 Chicago children: Some diagnostic, therapeutic, prognostic, and sociologic considerations. *Clinical Pediatrics*, 9(1):9-13, 1970.

Asymptomatic lead poisoning presents a number of problems in diagnosis and treatment since little is known of the long-term effects of lead. Results of a study of 85 children, ages 6 months to 7 years, are presented.

SCHLAEPFER, W.W. Experimental lead neuropathy: A disease of the supporting cells in the peripheral nervous system. *Journal of Neuropathology and Experimental Neurology*, 28(3):401-418, 1969.

Experimental lead neuropathy is characterized by coexistant segmental demyelination and Wallerian degeneration. The relationship of these phenomena is unclear; however, the combination of sensory neuronal degeneration and segmental demyelination may be explained by a common metabolic lesion to supporting satellite and Schwann cells of the peripheral nervous system.

WIENER, G. Varying psychological sequelae of lead ingestion in children. *Public Health Reports*, 85(1):19-24, 1970.

Lead poisoning, accompanied by encephalopathy, frequently has permanent impact on the mental development of children. It is not clear whether lead ingestion which does not lead to encephalopathy has permanent effects on mental development.

## BROAD ASPECTS OF MENTAL RETARDATION

2114 BAVIN, JACK. Subnormality in the seventies: Priority in resources. *Lancet*, 1(7641):285-287, 1970.

In order to upgrade Britain's hospitals for the MR, changes must take place at hospital, regional, departmental, and political levels. Hospitals should concentrate their resources on specific service areas to show that change is possible and should attempt to reduce overcrowding. Regional administration should upgrade existing hospital services rather than develop new community services. The Department of Health and Social Security should allocate resources to beds for the MR in proper proportion to the total number of hospital beds; Britain should also increase its level of Health Service expenditure. The problems in hospitals for the MR are not due to the hospital workers but to the lack of financial and managerial support from higher authority. (1 ref.) - *E. L. Rowan.*

Leavesden Hospital
Watford, England

2115 Mentally subnormal children. *British Medical Journal*, 1(5689):130, 1970. (Editorial)

Responsibility for trainable retarded children in England and Wales is being transferred from the Health Service to the Education Service. The change is acclaimed by some educationists and parents who bewail the widely varying standards of local health authorities and who contend that facilities for training TMRs are worse than those for educating EMRs. Some parents, moreover, resent the description of their children as "unsuitable for education" and believe that education towards literacy by teachers is more appropriate to their children's needs than the training by health department supervisors which emphasizes self-care and social behavior. It is quite possible, however, that the educational curricula which will evolve in these new schools for TMRs may not differ much from the present social training programs now criticized. Where careful provision for training has already been made, there is fear that training center standards may be lowered when they are taken over by the education authorities. (No refs.) *J. Moody.*

2116 Seattle architect studies needs of the handicapped. *Mental Retardation News*, 19(9):7, 1970.

Arnold G. Gangnes, chairman of the Architectural Planning Committee for the National Association of Retarded Children, contends that facilities for the MR ought to be designed to be as close to actual home-life conditions as possible. Institution-oriented Americans mass feed and house the retarded on the assumption that small facilities are too costly. Danish experience shows that small, home-like facilities for MRs are more economical to build and operate. Reductions in resident-caused damages and inservice costs are attributed mainly to the homier environment. Placing a bed in the corner of a room, for example, leaves space for other furniture for warmth and activities. Danish designers have created a bed that fits into a corner and still is easily made. (No refs.) - *J. Moody.*

2117 KISHORE, BALDEV; & JAIN, C. KANTA. Mental retardation: A proposed classification for use in India. *Indian Journal of Mental Retardation*, 2(2):80-86, 1969.

Classification schemes for MR are beset with difficulties arising from terminological confusion as well as from limited understanding of retardation. Any concept of MR should incorporate the dual criteria of low intellectual functioning and impaired social adaptation. At present, however, assessment of the degree of retardation relies on IQ alone since

adaptive behavior cannot yet be objectively measured in view of varying age and cultural norms. Classification schemes in use are further deficient in categorizing etiological factors. The 5-category breakdown of MR severity in the International Classification of Diseases (W.H.O. Manual--1965 revision) should be further subdivided to cover etiology in greater detail. (7 refs.) - *J. Moody.*

Punjab Mental Hospital
Amritsar, India

2118 ZARFAS, D. E. The mentally retarded and the physician. *Canadian Medical Association Journal,* 102(7):733-735, 1970.

Among the ways physicians can help prevent MR are immunizing children against infectious diseases, eliminating pregnancy and birth complications by good prenatal and obstetrical care, and providing for therapeutic abortion when fetal cell abnormalities leading to retardation are detected. The way in which parents are informed and advised about a newborn who has a high probability of being MR, such as Down's syndrome, will affect the parents' reactions and the child's life for many years. Immediate placement in an institution is generally ill-advised. Management of MRs, which has changed remarkably since World War II, now emphasizes programing for the retardate at home or as close to home as possible. Such programs as day care, school, recreation, or sheltered workshops in the community can be provided more economically and humanely than was possible in the past through institutions. Nonetheless, a physician should be familiar with the facilities to which he refers his patients. Retarded children require extra medical attention because of delayed development and frequently associated abnormalities, such as visual, motor, and auditory defects. The mildly retarded are most difficult to detect because they are most like normal people. They require medical treatment and counselling in child-rearing practices, family management, and (because of significantly higher birth rates) family planning more than any other group of citizens. To reach these people new medicare programs and delivery systems should be developed. (6 refs.) - *J. Moody.*

Ontario Department of Health
Parliament Buildings
Toronto 101, Ontario, Canada

2119 PAYNE, RUDOLPH. Deficiency. *Lancet,* 2(7635):1422, 1969. (Letter)

The use of the clinical term "mental deficiency" to describe "mental abnormality" is questioned since *A Glossary of Mental Disorders,* prepared by the subcommittee on classification of Britain's Registrar General's Advisory Committee on Medical Nomenclature and Statistics, favors the term "mental retardation." (No ref.) - *B. Berman.*

Brundall
Norfolk, England

2120 GORDON, ISRAEL. Seebohm sophistry and green-paper gallimaufry. *Lancet,* 1(7589):299-300, 1969.

The evidence which the recent Seebohm report cites does not support the conclusions of the report. The report indicates that the barrier between social and health services is an artificial one and, ideally, should be broken down but not at the present time. Seebohm states that one profession should not work under the other, but he does not discuss the logical conclusion which this statement implies--that each of the numerous professional groups would then operate separate departments. Instead, the report emphasizes the importance of the professional groups working together. Among the many implications of this report are: that a child's medical and social diagnoses are separate; and that after his diagnosis, his treatment will occur in still another department. (5 refs.) - *M. S. Fish.*

London Borough of Redbridge
London, England

2121 A welcome for Seebohm. *Lancet,* 1(7589):316-317, 1969.

Recent debate in the House of Lords on the report of the Committee on Local Authority and Allied Personal Services (the Seebohm report) reflected general approval of the report's recommendations. Often, the social service organizations designed to aid broken homes are as fragmented as the homes themselves. A single family service, responsible to local authorities, should meet as many family needs as possible. Other proposals under consideration for community-development projects would go even further than the Seebohm recommendations. While the unified organizational structure proposed by Seebohm sounds attractive, the main problem may be the lack of the uniquely trained and skilled multipurpose worker who, as suggested by Seebohm, could deal effectively with the wide range of problems which single family service organizations would face. (2 refs.) - *M. S. Fish.*

2122 MacGREGOR, M. E. Seebohm sophistry and green-paper gallimaufry. *Lancet*, 1(7591):421, 1969. (Letter)

Consulting pediatric services should be available to health committees; also the community and the hospital would be aided by a direct link with pediatric services. The pediatrician, as a community physician, could serve as an advisor to coordinate the health of children in the community, to recognize and manage handicapped children, to advise committees on questions of child health, to supervise the diagnosis and follow-up of referred cases, and to educate other health-care personnel in these problems. These duties would require more training in developmental pediatrics than the pediatrician obtains normally and would also require changes in local administration so these services could be properly utilized. (1 ref.) - *M. S. Fish.*

Warwick Hospital
Warwick, England

2123 CULLINAN, T. R. "At risk" in the U.S.S.R. *Lancet*, 2 (7686): 1075-1076, 1970.

A comparison of English "at risk" medicine and its Russian counterpart reveals both strengths and deficiencies in the latter. Russian medicine, despite its socialistic orientation, community-wide basis, and the high value placed upon the child, does not practice early diagnosis of babies "at risk" by reason of antenatal and perinatal factors. If intensive examination of the child during the 9-day lying-in period does not reveal genetic or other abnormalities, the child is considered normal. No further attention to incipient abnormalities is given unless they are clinically demonstrated or detected later by the parents. But the Russian system of parental education is superior to English education and, in part, makes up for some lack of formal neurological testing in the early months. (No refs.) - *S. Glinsky.*

Sydenham House,
Church Road,
Ashford, Kent, England

2124 MOHAN, BRIJ. The adult retarded: Problems and programmes. *Social Welfare*, 16(5): 26-28, 1969.

The aggravated plight of the adult retarded in India requires comprehensive government MR programs. Existing conditions are woefully inadequate due to very limited institutional facilities, extremely limited opportunities for treatment in mental hospitals, the increased difficulty of family care during adulthood, and widespread negative attitudes of the public toward MR. Further, the government does not undertake progressive measures for the MRs' welfare. Programs must be designed for mildly and severely retarded and should include short-and long-term institutional care and family services. Attitudes regarding the correlation of criminality and retardation are improving. All programs should envision training the MR for gainful integration into society. Present pressing problems in India of poverty, backwardness, and unemployment must not become an excuse or justification for ignoring the welfare of the MR. (No refs.) - *S. Glinsky.*

Dept. of Sociology and Social Work,
Lucknow University,
Lucknow, India

2125 CUBELLI, GERALD E. Some dynamics of the referral process. *Rehabilitation Literature*, 31(7):200-202, 1970.

Certain theoretical considerations regarding the dynamics of the referral process can improve its effectiveness for both the MR patient and the care-giver. Referral is an essential mechanism conveying the patient from one specialized source to another. Yet specialization of itself works against the longitudinal help process due to professional pride, refusal to admit failure, and the desire of the care-giver not to refer a patient in whom he has invested much effort or who exhibits progress. The facilitation of referrals, especially to newcomers, requires an attitude of trust between professionals. Also, the newcomers must maintain communication with the referral source to improve confidence and to maintain a sense of continuity of care in the patient. (7 refs.) - *S. Glinsky.*

Harvard Medical School
Boston, Massachusetts 02115

2126 MELTON, JAMES J. Old order Amish awareness and understanding of mental retardation: A religious subcultural approach to the phenomenon. *Dissertation Abstracts International*, 31 (section A): 1970.

This field study investigated the prevailing attitudes and beliefs of a closed subcultural group (the Old Order Amish) regarding the causes, problems, and care of MRs within their culture. The Ss were a stratified sample of 52 adult Amish men and women in the Amish settlement of Holmes County, Ohio.

The method utilized a review of Amish literature, personal observation over a period of eight months, and analysis of the interview replies of the Ss to a questionnaire. The findings included an Amish awareness of hereditary causes of MR and support for proper medical diets and treatments, belief in the ill effects of long-term institutionalization, and the futility of aid and treatment from unlicensed medical individuals, the acceptance of an MR child as God's will, an increasing awareness of the need to institutionalize SMR children, and a tentative willingness to go outside their culture for help for their MR. The study was based on the view that MR is best understood as a social and cultural phenomenon. (No refs.) - *S. Glinsky.*

No address

2127 SOCIETY FOR THE PSYCHOLOGICAL STUDY OF SOCIAL ISSUES. Psychologists comment on current controversy: Heredity versus environment. *Trans-Action,* 6(8):6-10, 1969.

Recent claims that Negro-white differences in IQ scores have a large hereditary basis is opposed. Evidence indicates that the more comparable the background, the less the difference between IQ scores. No innate race difference is demonstrable, and political, historical, economic, and psychological factors must be considered in any comparisons. The assertion that compensatory education has failed is unproven. The problem cannot be resolved on the basis of heredity versus environment, but by a balanced, integrated approach. Present IQ tests have serious limitations, and race differences are often defined socially rather than strictly genetically. An attitude of open, scientific inquiry must be maintained, particularly in questions having social implications. (No refs.) - *S. Glinsky.*

P. O. Box 1248,
Ann Arbor, Michigan 48106

2128 HITT, PATRICIA REILLY. New directions. *Programs for the Handicapped* (October 24) 69-14, 1969, 5p.

The federal government has a deep commitment to furthering work with the MR and commends the efforts of youth in this area, especially the Youth National Association for Retarded Children. Careers in working with the MR are developing as the field provides information in related areas of learning, job analysis, re-examination of professional roles, and the causes of human development errors. Further, the MR is being reintegrated into the regular educational and medical care institutions of society. These fundamental changes provide a future and challenge to work in the field of MR, and will aid in uniting society and increase its social consciousness. (No refs.) - *S. Glinsky.*

Secretary's Committee on Mental Retardation
Washington, D. C. 20201

2129 LIPPMANN, LEOPOLD. Effective services depend on public attitudes. *Channels Forum,* Newsletter of the National Public Relations Council, December 15, 1969, 2 p.

The MR programs in 5 Scandinavian countries are more humane, positive, and effective than those in the United States. This is due primarily to the view in these countries of societal responsibility for dependent members. We should adopt this view as an alternative to our work ethic attitudes, the criterion of perfection, and emphasis upon competition as the vehicle of success. The ideas of interdependence, cooperation, and social responsibility are contained in the American experience. The Scandinavians believe in implementation of their philosophy through the national government. Traditional American aversion to socialism can best be countered by a distinctly American partnership of governmental and voluntary services. (No refs.) - *S. Glinsky.*

No address

2130 FISHBEIN, MORRIS. Mental retardation - I. *Medical World News,* 10(8):60, 1969. (Editorial)

Major advances have been made in the field of MR, yet the interest shown during this decade must be maintained and intensified in order for these advances to be felt. State accommodations are frequently inadequate, despite the fact that taxpayers' contributions total more than half a billion dollars yearly for residential facilities for care of MRs. Recommendations by the President's Committee on MR call for greater funding and more laws to improve and increase housing facilities. It also recommends the use of scholarships and grants to overcome the manpower shortage. Its most comprehensive program concerns the defeat of poverty as a factor responsible for MR, but it is too reliant on certain public and private agencies for its fulfillment. The specific community mental health movement begun by the Menninger Foundation (Topeka, Kansas) is the kind of activity needed to attack MR in very poor localities. (No refs.) - *B. J. Grylack.*

No address

2131 ITOH, MASAYOSHI. Rehabilitation in a new dimension: Preventive rehabilitation and its implementation. *International Rehabilitation Review,* 20(2):15-17, 1969.

Rehabilitation medicine, one of the newest clinical specialties, has directed itself beyond the limits of conventional medical and hospital care more than any other clinical specialty, and it has become community-oriented in the struggle against rising incidence of disability. Public health, historically, concentrates on primary prevention and has become increasingly concerned with the delivery of better health care to patients and the community. Clinical medicine, which is designated secondary prevention, has stressed genetic counseling and fetology in order to prevent or predict congenital malformation or disease. These established branches of medicine have focused traditionally on different aspects of man's health status, while preventive rehabilitation explores all causes of disability and goes one step beyond preventive medicine by executing procedures to reduce the risks in a susceptible population. Teamwork is basic to comprehensive health care and should characterize preventive rehabilitation efforts. (No refs.) - *B. J. Grylack.*

New York University
New York, New York

2132 SHARMA, K. C. Population of disabled on the increase: Disabilities and their new trends. *Journal of Rehabilitation in Asia,* 10(2):13-18, 1969.

The total population of the disabled has increased due to a rise in world population and a concomitant increase in accidents, survival rate of prematures, forceps trauma, old age vascular diseases, gonadal irradiation, and childhood disabilities resulting from increased drug addiction in men and women. While the incidence of polio, encephalitis, visual handicap, and similar disabilities may continue to decrease, new orthopedic and mental handicaps due to accidents as well as to hemiplegia in old age may go on increasing. Rehabilitation planning and treatment have to be directed towards the kinds of disabilities ensuing from the technological, industrial, and scientific development of the country. (24 refs.) - *B. J. Grylack.*

All India Institute of Medical Sciences
New Delhi-16, India

2133 TEJA, J. S. Problems in classifying the retarded. *Indian Journal of Mental Retardation,* 2(2):66-67, 1969. (Editorial)

Many problems persist in the attempt to provide a classification of the MR which will satisfy all of the disciplines involved. Confusion results from the usage of overabundant terminology including IQ levels, social adaptability criteria, and biochemical data, which have their liabilities and limitations. The latest "International Classification of Diseases" of the World Health Organization and the American Psychiatric Association's "classification of mental illnesses" have designated severity of MR by using terms like borderline, mild, moderate, severe, and profound. Until a multidisciplinary interaction produces a comprehensive classification of MR, each discipline will continue to use the system which suits its own diagnostic and therapeutic aims. (No refs.) - *B. J. Grylack.*

No address

2134 HENDERSON, PETER. Disease and disability in schoolchildren--Part 2. *Nursing Mirror,* 130(21):48-51, 1969.

The number of children with tuberculosis of the bones or joints or with rheumatic heart disease in schools for the physically handicapped has dropped remarkably since the early twentieth century. Cerebral palsy now accounts for the largest group of children in these schools, with spina bifida cystica second, congenital heart defects third, and muscular dystrophy fourth. Although hemophilic children comprise one of the smallest groups of physically handicapped children, close liaison between schools and hemophilia centers is needed to substantially reduce the effects of the problem through cryoprecipitate treatment. Most epileptic and diabetic children attend ordinary schools, although there are a few special schools for them. The number of children at schools for the blind fell from 1934 to 1953 with prevention of ophthalmia neonatorum, rose from 1953-1960 on account of a sudden increase in premature babies who developed retrolental fibroplasia, and fell again by 1966. Chief causes of blindness in school children today are optic atrophy and congenital cataracts, while cataract, myopia, and optic atrophy are the major causes of partial sight. Earlier diagnosis, hearing aids, and parent education have resulted in many children being educated as partially hearing

rather than deaf, as they would have been 30 years ago. Although special educational treatment for children with speech disorders began in 1906, the first special school was not established until 1947. The incidence of stammering has decreased, but the number of children with speech defects has risen in recent years. (6 refs.) - *J.C. Moody.*

No address

2135 HENDERSON, PETER. Disease and disability in schoolchildren--Part 3. *Nursing Mirror*, 130(22):45-47, 1969.

The improved physical health of British schoolchildren in the past 50 years has increased awareness of the many with emotional, behavioral, and learning difficulties. More than half the children receiving special education are in schools for the educationally subnormal. Many are poor readers, and there are now a number of centers for study and treatment of children with specific developmental dyslexia. School-age children who are SMR are mostly in local health authority training centers or in MR hospitals. Provisions for emotionally disturbed children developed rapidly after World War II with the number of special schools increasing from 13 in 1959 to 93 in 1968. In addition, many regular schools now provide special classes for the maladjusted; however, autistic children are apt to be in MR training centers or hospitals, in the few special schools, or at home. Juvenile delinquency has increased since 1938, and the "success rates" of approved schools have been falling. There is much need for more study of delinquents, their home circumstances, and the methods used to deal with them. (13 refs.) - *J.C. Moody.*

No address

2136 FELDMAN, LLOYD. Retardation, poverty, and jobs. *Manpower*, 1(8):30-32, 1969.

A New York City chapter of the Association for the Help of Retarded Children survey of nearly 400 MRs who had completed special education classes in the city's public schools shows a close relationship between poverty and retardation. More than half the MRs who had been in classes for the retarded were from families that received public welfare. Many retarded children remain in regular classes throughout their school career while many non-retarded children (particularly Puerto Ricans with language difficulties) are placed in the special classes. After leaving school, more than 60% of the MRs (especially minority group members) did not take advantage of training, counseling, and placement services of the State Division of Vocational Rehabilitation--generally because parents failed to realize the need for additional help or were unaware that the services exist. Although 60% of the male respondents have competitive jobs, their pay is very low. Because their potential for advancement to higher skill levels is minimal, many are likely to work permanently for a poverty-level income. Factors involved in the low employment level (less than 30% of the sample) of retarded women are: families tend to be protective of retarded girls and many of the occupations available to MRs are by custom more likely to employ men. For most retarded youth, the schools are the only agency with information about their special handicap. A formal link between schools and post-school manpower services would be highly desirable. (1 ref.) - *J.C. Moody.*

Manpower Administration
U.S. Department of Labor
Washington, D.C. 20210

2137 HENDERSON, PETER. The changing pattern of disease and disability in schoolchildren in England and Wales.--Part 1. *Nursing Mirror*, 130(20):21-26, 1969.

Greatly improved medical care and treatment, particularly chemotherapy, in the past 30 years has dramatically reduced the child mortality rate from infectious diseases. Higher living standards, better nutrition, better housing, and improved medical care have significantly reduced the incidence of scarlet fever, diphtheria, whooping cough, measles, poliomyelitis, tuberculosis, rheumatic fever, and rheumatic heart disease. However, congenital heart disease appears to be as prevalent as it was a generation ago, and the number of school child deaths from asthma, congenital defects (including heart disease), and cancer has risen. Safety education programs have contributed to fewer deaths from accidents, and improved hygiene and nutrition since the beginning of this century have greatly reduced the numbers of undernourished, verminous, and rickety children. Ringworm, impetigo, and scabies have also decreased substantially. (20 refs.) - *J.C. Moody.*

No address

2138 ENGEL, M. Dilemmas of classification and diagnosis. *Journal of Special Education*, 3(3):231-239, 1969.

Classification, or the assignment of a person to a group, is often confused with diag-

nosis but it is only part of the diagnostic process which includes the discernment of difference, assignment of value, assignment of a label (naming), and explanation (diagnosis). The decreased interest in diagnostic work and the deterioration of this clinical activity into classification stand in the way of serious evaluation of the effectiveness of various treatment approaches. Classification problems of researchers are most often dealt with by operationalizing the selection of Ss into high and low groups on variables such as anxiety, motility, or verbal behaviors. Clinicians and educators cannot categorize in this way. In recent years, problems of social policy-making and legislation require selection of children for various purposes which do not lend themselves to operational categorizing. Although formalization of understanding (the underpinning of diagnosis) is not progressing, classification is deriving new strength from a renewed, relativistic approach. (13 refs.) - *J.C. Moody.*

City College of the City University of New York
New York, New York 10031

2139 DUBOWITZ, VICTOR. The floppy infant--A practical approach to classification. *Developmental Medicine and Child Neurology*, 11(2):259-260, 1969. (Reply to letter by Tasker)

If an infant has marked hypotonia but is able to raise the limbs, he is unlikely to have a significant weakness and, hence, a neuromuscular disorder. With experience, it is easy to differentiate those infants with weakness from the floppy infants with good muscle power, who often have hypotonia in association with intellectual retardation. The paralytic group includes all cases with significant weakness irrespective of the degree of weakness. Some of the lipidoses can also affect the peripheral nerves and may then result in peripheral neuropathy and associated weakness. In a more detailed classification, the leukodystrophies with peripheral neuropathy are included in the paralytic group as well. (1 ref.) - *J. C. Moody.*

University of Sheffield
Sheffield 10, England

2140 TASKER, WILLIAM G. The floppy infant--A practical approach to classification. *Developmental Medicine and Child Neurology*, 11(2):259, 1969. (Letter)

With regard to the classification of hypotonic infants as paralytic or non-paralytic on the basis of ability to raise an arm or leg against gravity, it is questioned that significant degrees of weakness cannot be present if the infant is able to lift a limb against gravity. In addition, it is contended that the inclusion of congenital myopathies, muscular dystrophy, and dystrophia myotonica in the paralytic group because of their similar presenting clinical picture is fallacious; many of these could just as well be considered non-paralytic. The inclusion of the lipidoses in the non-paralytic groups is misleading, for metachromatic leukodystrophy commonly presents with a regression from acquired milestones and the clinical picture of chronic polyneuritis. (3 refs.) - *J. C. Moody.*

Children's Hospital of Winnipeg
Winnipeg 3, Canada

2141 ANDERSON, ROBERT M.: & STEVENS, G. D. Deafness and mental retardation in children: The problem. *American Annals of the Deaf*, 114(1):15-22, 1969.

A review of current literature synthesizes the present problems and attitudes regarding the special education of children with deafness and MR. The survey documents the virtual non-existence of research in this area, lack of agreement on terminology, inconsistencies in reported incidence and prevalence data, and no adequate rationale for assigning priority of 1 disability over that of 1 or more additional disabilities. There are also conflicting views on the best type of facilities for MR deaf children, while the present facilities remain inadequate. Much research is needed on the multitude of problems associated with the education of MR deaf children. (26 refs.) - *S. Glinsky.*

Gallaudet College
Washington, D.C. 20002

2142 SHARMAN, GEORGE. III. Rehabilitation of the mentally handicapped. *Australian Journal of Social Issues*, 4(2):27-40, 1969.

Real progress in helping MRs can only be made when the negative and incorrect attitudes underlying present terminology, such as "rehabilitation" and "mentally handicapped", are removed. MR must be redefined in social terms rather than medical. Modern urbanization and impersonal economic and commercial development have destroyed a sense of community, which must be revitalized. Present laws asserting impersonal police powers and mental hospital commitment powers over the MR require a new formulation in terms of enlightened community responsibility. Education and social work are the proper vehicles for the reintegration of the MR into society, and any

attitude or role of private or government charity must be rejected. (No refs.) - *S. Glinsky.*

No address.

2143 SHAPIRO, A. Deficiency. *Lancet,* 1(7638):141, 1970. (Letter)

The term "mental deficiency," in use since the beginning of the century, adequately defines its field, and no convincing case has been made for such substitutes as "subnormality" (inaccurate and confusing) and "mental retardation" (inadequate to describe the whole mental-deficiency span). "Mental deficiency" properly describes this field, whose purview is broader than merely low intelligence. If change is inevitable, however, then "mental handicap," which does not beg the question of etiology, is acceptable. (No refs.) - *B. Berman.*

Herperbury Hospital
Herts, England

2144 Looking for Papers. *British Medical Journal,* 1(5687):4-5, 1970.

Beginning in January 1970, the *Abridged Index Medicus,* a publication of the National Library of Medicine, will present a selected list of journal references of interest to the practising physician. References are chosen from a well-balanced collection of English-language journals, mainly American. The *Index* will inform the reader of the existence of recently published data. Its purpose is to overcome the long delay between publication and appearance of the citation, the principle shortcoming of *Index Medicus.* (No refs.) - *J. K. Wyatt.*

2145 MARSHALL, NANCY R.; & GOLDSTEIN, STEVEN G. Effects of three consultation procedures on maternal understanding of diagnostic information. *American Journal of Mental Deficiency,* 74(4):479-482, 1970.

Three diagnostic replay procedures completed with 45 mothers of speech-handicapped MR children and 45 mothers of speech-handicapped children of normal intelligence showed that a replay of the diagnostic consultation enabled mothers of children with normal intelligence to learn more about the child's problem than mothers of MRs. The 3 procedures were routine diagnostic consultation (consisting of a confrontation and discussion of the information by the mother and a speech pathologist) and a video-tape and audio-tape replay of it. The Communication Behavior Scale was developed to measure changes resulting from the 3 procedures as well as any differences occurring among the 2 sets of mothers. For Verbal Comprehension, Verbal Communication, and Articulation, the interaction of mothers and conditions was significant at or beyond the .05 level. The diagnostic consultation without replay resulted in greater gains for mothers of MRs. Apparently, mothers of MRs already had some knowledge and understanding of their children's difficulties so that new information on language dysfunction was processed relatively easily regardless of experimental conditions. In contrast, mothers of speech-handicapped but otherwise normal children showed movement in understanding dependent upon the particular experimental condition. (8 refs.) - *B. J. Grylack.*

University of Oregon Medical School
Portland, Oregon 97201

2146 CRAMOND, W. A. "One step at a time"--A review of some aspects of the recent literature on mental retardation. *Australian Journal of Mental Retardation,* 1(4):101-114, 1970.

A review of the literature on MR has revealed startling changes in attitudes toward retardates and attempts to find places for them in society. Research on basic behavioral development (cognition, perception, language development as a communication tool, personality, and motivation) indicates that learning by MRs seems to follow the same sequence as that of normals but more slowly, MRs require repetition, people with perceptual-motor difficulties may have intact perceptual abilities, and the MR patient is a personality in his own right. Studies on psychocultural antecedents reveal that severe malnutrition in the first 6 months of life may cause permanent mental deficit, and therefore, environmental enrichment is necessary. Literature on the impact of MR on family and community shows that parents pass through 3 stages of adjustment (shock and disintegration, adjustment, and integration) and that the employer and community are more accepting of the MR. The practical, immediate need for services has inspired the greatest research interest in the area of services for the MR. A review of research on brain mechanisms affecting intellectual behavior reveals a multitude of studies--biochemical, physiologic, and genetic (chromosomal analysis). (81 refs.) - *B. Berman.*

University of Adelaide
Adelaide, South Australia, Australia, 5000

2147 DYBWAD, GUNNAR. Architecture and mental subnormality: VII. Architecture's role in revitalizing the field of mental retardation. *Journal of Mental Subnormality*, 16(30):45-48, 1970.

The architect has a major role in planning and designing living conditions which provide warmth, stimulation, and growth for retardates. His function goes beyond implementation of plans laid out by traditional "experts". The architect must advise on selecting the crucially important building site, and on whether to build single, or several facilities--predicated on knowledge of design, materials, and construction. MRs (even severely retarded), when listened to, can give varied responses to their environment and express their needs. The new architect does not build from predetermined categories, but from the viewpoint of the individual resident and his living space (where he will eat, work, and play). He is guided by the principle of territoriality--that each living organism needs to control some space of its own. (14 refs.) - *B. Berman.*

Brandeis University
Waltham, Massachusetts

2148 MITTLER, PETER. Changing attitudes to the mentally subnormal. *Journal of Mental Subnormality*, 16(30):3-8, 1970.

Although the current interest in MR is gratifying, it is necessary to consider what will emerge from present discussions and examine attitudes towards the MR expressed by various groups. Public attitudes determine policy; although they are more enlightened now, the public needs to be more closely involved with MRs. Active involvement of families is imperative: large numbers of patients are never visited and contact between relatives and hospital staff is negligible. Attitudes of professionals are hard to categorize, but it is evident that there is great need for better training and education of professionals and improved communication within the hospital and with outside groups. Administrators and government are responding to favorable public feeling but are not receiving cooperation from the professionals. It is suggested that government could best display good intentions by providing for the educational needs of the children (mostly ambulant, continent, and free of major behavior disorders) in MR hospitals. (10 refs.) - *B. Berman.*

University of Manchester
Manchester, England

2149 KIRMAN, BRIAN. The mentally handicapped individual in society. *Journal of Mental Subnormality*, 16(30):9-16, 1970.

Classification of the MR poses problems, as the history of mental-health legislation makes clear. Definitions of abnormality are purely relative, and attitudes toward abnormality are affected by objective and subjective climate at any given time or place. The industrial revolution ushered in new social views and initiated concern for the ineducable minority. Controversy over the true nature of MR has focused on the relative contributions of native intellectual endowment and culture, with definitions of MR frequently reflecting expediency and artificial dichotomies. There is urgent need to inject humanitarianism into the care and institutionalization of the retarded. (29 refs.) - *B. Berman.*

Queen Mary's Hospital for Children
Carshalton, Surrey, England

2150 PARASCANDOLO, GUGLIELMO; & LEPORI, ANNA. Le barriere architettoniche per gli handicappati motori nella citta' di Torino (Architectural barriers for the handicapped in the city of Turin). *Neuropsichiatria Infantile*, 100-101(May-June):531-538, 1969.

Architectural barriers are understood to be all the physical obstacles which make access to buildings difficult for the wheelchair-bound handicapped. Initiatives taken in various countries to make buildings "functional" with regard to the physically handicapped are outlined and the minimum requirements are given for entrances, ramps, banisters, toilets, elevators, and telephone booths. A summary of what has been done to date in Turin (Italy) indicates that the city is far from having solved this important social problem. (4 refs.) - *G. Van Massenhove.*

Associazione Italiana Assistenza Spastici
Via Crescenzio 25
00193 Roma, Italy

2151 RICHARDS, I. D. GERALD; & NICHOLSON, M. F. The Glasgow linked system of child health records. *Developmental Medicine and Child Neurology*, 12(3):357-367, 1970.

A computer-based system has been established in Glasgow for the linkage of children's health and developmental records on the premise that 2 or more items of information registered at different times can lose considerable significance when studied in isolation. The record notes contain the birth

record, obstetric and social factors, family deaths in infancy or childhood, address, handicaps, and information on hospital admissions. In the future, the linkage method may be extended to include the notifications of infectious disease and educational records. The system is valuable for clinical care, as a register of special risk cases, and as a summary of documentation on immunization status, neonatal records, and preschool years. In the area of health-service administration, the records have been utilized to schedule immunization appointments and to compare perinatal mortality rates. The advantages of the system are also vital to epidemiological research including longitudinal studies of health and disease, assessment of congenital malformations, and investigation of interrelationships between diseases. (17 refs.) - *B. J. Grylack.*

University of Glasgow
Glasgow, Scotland

2152 NEALE, MARIE D. Elwyn Morey memorial lecture: Human potential. *Australian Journal of Mental Retardation*, 1(1):4-8, 1970.

Current social change has altered our judgment and evaluation of conventional modes of learning and our environment so greatly that Bruner and other social scientists warn against the division of citizens into an essential and a surplus group, and strongly emphasize the need for significant and feasible learning by beginners. While the interdisciplinary approach is a productive one, it tends to narrow and inhibit research and general perspective. Similarly, learning theorists and innovators in psychotherapy seem to reduce all behavior to a simple, preconceived conditioning process. Neurosis, a major factor in the wastage of human potential, can be dealt with successfully if an individual has the funds to seek private help, but the individual who entrusts himself to the care of a public mental hospital may find disinterested therapy groups, unused talent among the staff, and impersonal treatment. Loss of human potential is continuing also in the schools. Above average intelligence scores together with failure to achieve appears to be a common syndrome of early childhood. Although these children occasionally share features with brain-damaged children, it is dangerous to call them brain injured, retarded, or autistic in the absence of clear evidence. Professionals in the humanities are inhibited by frustration from learning and applying new methods because of their isolation from creative thinking and research. Change must be implemented enthusiastically and on a broad scale in order for the serious wastage of human potential to cease. (12 refs.) *B. J. Grylack.*

Monash University
Clayton, Victoria, Australia 3168

2153 Misplaced children. *Teaching and Training*, 8(1):30-31, 1970.

In a spot check of 460 autistic children (CA 5-14 yrs) with families throughout the British Isles, 60 were in hospitals for the MR. In the entire British Isles, there are approximately 3,700 autistic children in this age group, and 773 are estimated to be in MR hospitals. Such placement has a negative effect on the child's development as well as on the parents. Autistic children are not included in the list of handicapped children requiring special educational treatment; therefore, they are easily overlooked by educational authorities. (No refs.) - *J. K. Wyatt.*

2154 VOLLER, GEORGE. Is the brain-injured child something new? *Academic Therapy*, 5(4):267-269, 1970.

Current knowledge concerning the characteristics of brain-injured children needs to be assessed and a multidisciplinary and interdisciplinary exchange of information should be used to help these children learn to cope successfully with school-oriented tasks. Parents need professional counseling to enable them to understand the child's behavior patterns and learn to cope with them. Early identification of the brain-injured child permits a tentative diagnosis, analysis of strengths and weaknesses, educational planning for prescriptive teaching, and the use of remedial techniques before the child has been exposed to the frustrations of prolonged failure experiences. (5 refs.) *J. K. Wyatt.*

Hudson School for Brain Injured Children
Bayonne, New Jersey 07002

2155 TEELE, JAMES E. Sociocultural factors relating to mild mental retardation. *Social Science & Medicine*, 3(3):363-369, 1970.

A review of current research findings on the relation between sociocultural factors and mild MR in the United States revealed that social status, racial composition of schools, and maternal concern have important effects on school progress. Social class appears to be related to achievement motivation--a fac-

tor which may also be related to the large percentage of school underachievement and school failure prevalent among low-income families. A systematic investigation of the relation between school student body characteristics and educational outcomes suggests that a large amount of mild MR and/or school underachievement may be due to the sociocultural factors of social class, social class composition of schools, racial composition of schools, and interracial acceptance. Conditions and training at home appear to influence a child's mastery motivation and his estimation of his ability to control his own fate. (17 refs.) - *J. K. Wyatt.*

Harvard School of Public Health
Boston, Massachusetts 02115

2156 BENTON, ARTHUR L. Neuropsychological aspects of mental retardation. *Journal of Special Education,* 4(1):3-11, 1970.

Although the neuropsychological approach to the study of MR is indirect and uncertain, the data it provides may be useful in the development of an understanding of the nature of the behavioral deficits associated with MR. There is empirical evidence that the apraxic syndrome found in MRs may be related to faulty development of the parietal lobes. The motor impersistence observed in a small number of adult patients with cerebral disease, as well as in MRs with brain damage, correlates with involvement of the right hemisphere and general mental impairment. The rehabilitation prognosis for patients with left hemiplegia and motor impersistence is poor. Neuropsychological evidence indicates that receptive-expressive developmental aphasia is due to a central impairment of hearing which results in defective processing of auditory information. The cause of this basic impairment is cerebral damage which involves the central auditory pathways and projection areas. The degree of language disability evidenced by MRs is frequently more severe than would be expected from mental age. Studies of somesthetic function, such as finger recognition, indicate a high incidence of finger agnosia in MRs. The orientation of MRs with Down's syndrome is primarily visual, while that of MRs without Down's syndrome is primarily tactile. At the present time, neuropsychology provides an approach to MR which is primarily behavioral. Studies which attempt to establish systematic correlations between the nervous system and MR are needed. (29 refs.) - *J. K. Wyatt.*

University of Iowa
Iowa City, Iowa 52240

2157 D'ALTON, S. O. Concepts of retardation in industrial society. *Australian Journal of Mental Retardation,* 1(2):38-39, 1970.

Because of the social values attributed to high intelligence and economic capacity in an industrial society, many MRs are devalued as productive members and as persons with individual needs. Negation of the person is facilitated by institutions which separate MRs from the community and by categorizing individuals. Work choice for MRs generally emphasizes the process and form of compliance and ignores personal needs not related to economic capacity. When MRs are devalued, there is also a relative devaluation of the persons who work with them which results in adverse professional attitudes. (4 refs.) *J. K. Wyatt.*

University of New South Wales
Kensington, New South Wales, Australia 2033

2158 LEARY, R. D. J. Mentally subnormal children. *British Medical Journal,* 1(5694):496, 1970. (Letter)

The teacher's attitude toward MR pupils is more important than his particular educational background. No one really knows how much MR children can learn because they have never been trained to the limits of their ability. The stereotype of the chronically institutionalized MR child is too often carried by teachers and physicians as well. We must be optimistic until shown otherwise by each MR student. (No refs.) - *E. L. Rowan.*

No address

2159 MUMPOWER, D. L. Sex ratios found in various types of referred exceptional children. *Exceptional Children,* 36(8):621-622, 1970.

An evaluation of 2,928 white exceptional children revealed the ratio of boys to girls to be 70:30. In the areas of low mental ability boys comprised 72.1% of the borderline, 65.3% of the EMRs, 49.2% of the TMRs, and 66.7% of the PMRs. Boys accounted for 77% of the educationally retarded, 67% of the neurologically impaired, 71% of the speech handicapped, 71% of the hearing handicapped, 68.8% of the visually impaired, 62% of the physically handicapped and 70.8% of the emotionally disturbed. The data suggest that special education administrators should plan on most populations of exceptional children being com-



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posed largely of boys. (No refs.) - *C. L. Pranitch.*

University of Southwestern Louisiana
Lafayette, Louisiana

2160 MAC KEITH, RONALD. Lessons from the care of the chronically handicapped. *Developmental Medicine and Child Neurology*, 12(1):1, 1970. (Editorial)

In the care of the chronically handicapped, the physician must learn to determine underlying problems and deal with the whole person rather than merely treating symptoms. When necessary, he must obtain aid from specialists and utilize community resources. Medical students show an interest in prevention, diagnosis, and management of the chronically handicapped, and the application of the knowledge they gain in dealing with such cases can result in their increased ability to treat acute illnesses. (No refs.) - *M. S. Fish.*

No address

2161 LAGERGREN, JAN. Motor handicapped children: A study from a Swedish county. *Developmental Medicine and Child Neurology*, 12(1):56-63, 1970.

A total of 194 motor handicapped children (CAs 4-16 yrs) was found in a total population of 400,000 in a Swedish county in 1966. Incidence of children with locomotor disabilities and with cerebral palsy (CP) was 2.6 and 1.8/1000 live births, respectively. Of the 128 (65% of total handicapped) Ss with CP, the male:female ratio was 1.4:1, but the diplegic group was dominated by males even more. Short gestation was 3 times more common among the CP when compared with the other motor handicapped Ss. Also, 68 (53%) of the CP group had certain or suspected perinatal brain damage. Severe motor handicaps occurred in 17% of the spastics and in 32% of the other CP group. Fourteen of the Ss with a diagnosis other than CP had severe motor handicaps, and of these, 8 had progressive neurological or muscular disease. Of the total handicapped group, 55% had normal intelligence, 19% were dull, 13% were MR, and 12% were SMR. Severe total handicaps occurred with 110 (57%) of the group, and the family provided care for 87% of the handicapped children. (12 refs.) - *M. S. Fish.*

University Hospital
Lund, Sweden

2162 RICHARDS, B. W.; & SYLVESTER, P. E. Mortality trends in mental deficiency institutions. *Journal of Mental Deficiency Research*, 13(4):276-292, 1969.

Statistical analysis of death trends in institutions for the MR over a 40-year period has shown that the death rate is higher than that of the general population and the mean age at death of males has risen sharply. Rates of mortality from respiratory diseases are considerably higher for the institutionalized patients as compared to the general population. Patients classified as SMRs had higher death rates than those found for other grades. Up to 50 years of age, TMRs without Down's syndrome and TMRs with Down's syndrome had comparable death rates. There appears to be a trend toward lower death rates in certain younger age groups, particularly in males. The rise in mean age at death of the institutionalized males may be related to high attrition rates among males during the earlier period (wartime). Overall death rates have not fallen below pre-war levels; however, this is due to the increasing age of the population at risk. Respiratory diseases were the most prominent cause of death which seems to be a national phenomenon for hospitalized patients. Limited data from other sources show trends which are similar to some of those found in the study. (10 refs.) - *M. S. Fish.*

St. Lawrence's Hospital
Caterham, Surrey, England

2163 LOW, J. A.; BOSTON, R. W.; & CERVENKO, F. W. A clinical classification of the mechanisms of perinatal wastage. *Canadian Medical Association Journal*, 102(4):365-368, 1970.

Eight specific groupings of pathophysiological mechanisms which cover the entire range of perinatal problems comprise a suggested clinical classification of perinatal morbidity and mortality. When this classification was used for 1,253 perinatal deaths at a hospital during 1960-1961, 193 (15%) were classified as developmental abnormality, 180 (14%) as immaturity and prematurity, 70 (5%) as blood group incompatibility, 25 (2%) as infection, and 785 (60%) as either chronic or acute fetal insufficiency or newborn respiratory failure. No figures were available, due to difficulty in measurement, for the eighth category--trauma. Although the classification presents problems related to measurement, particularly when more than one category appears to be involved or when an abnormality is not assessed until some time after birth, its use may aid in orienting

the perinatal problem to the fetus. Frequently, a maternal problem may not reflect the nature of the fetal problem; its prompt recognition is essential for proper management during the perinatal period. (4 refs.) *M. S. Fish.*

Queen's University
Kingston, Ontario, Canada

2164 GARDNER, JAMES M.; BRUST, DONNA J.; & WATSON, LUKE S., JR. A scale to measure skill in applying modification techniques to the mentally retarded. *American Journal of Mental Deficiency*, 74(5):633-636, 1970.

A training proficiency scale (TPS) has been shown to be a reliable and efficient measure of the effectiveness of an individual's use of behavior modification techniques. The Ss were 20 female attendants in an institution for SMR and PMR patients. Ages of Ss ranged from 18 to 40 years and educational levels from the tenth to the twelfth grades. The TPS contained 28 items grouped under 4 major components of behavior modification skills (reinforcing, shaping, communicating, and establishing rapport). The Ss alternately assumed the role of trainer and patient, and raters assessed the skill of each in teaching verbal commands and self-care. Interscorer reliability was examined by utilizing 2 raters of differing background and experience and 2 raters of comparable experience and training. Global evaluations by 2 experienced raters were also made of 10 trainers following the last rating session. Interscorer reliability was 0.55 for the 2 raters differing in background and 0.89 for the 2 experienced raters with comparable background and training. Split-half reliability was high as was test-retest reliability based on rerating 7 trainers after 1 week. A high correlation was also found on comparing trainers in the role-playing model with their actual proficiency with residents. The TPS scores were found to correlate with global evaluations of training proficiency. (5 refs.) -*M. S. Fish.*

Columbus State Institute
Columbus, Ohio 43223

2165 BRACKENRIDGE, G. R. Deficiency. *Lancet*, 1(7640):246, 1970. (Letter)

Use of the term "mental retardation" to cover the whole field of subnormality is preferred to such terms as "subnormal," "mental handicap," and "mental disorder" since it would cause less misunderstanding between different disciplines and the public. Psychologists and medical authorities use "subnormality" and "severe subnormality" differently, and the use of the term "mental handicap" in place of "subnormality" might also tend to cause its misuse for the term "mental disorder." (1 ref.) - *M. S. Fish.*

Divisional Health Offices
Chadderton, Lancashire, England

## MEDICAL ASPECTS--DIAGNOSIS (GENERAL)

2166 MILLER, JAMES R.; & POLAND, BETTY J. The value of human abortuses in the surveillance of developmental anomalies: I. General overview. *Canadian Medical Association Journal*, 103(5):501-502, 1970.

A study of 498 human abortuses was made to provide supplemental information for the earliest possible detection of developmental anomalies. The spontaneously aborted specimens were assigned to 1 of 4 developmental groups, depending upon developmental age at time of death or length of the fetus. Information on the family and pregnancy was obtained by direct interview. The results indicate that 88% of developmental abnormalities in Group I (fetus under 5 mm or up to 28 days) had 88% (73 out of 83) with developmental anomalies. Group II (fetus 6-30 mm or 29 to 45 days) had 58% (71 out of 122) with anomalies,

Group III (fetus 31-100 mm or 46 to 89 days) had 32% (56 out of 177) with development problems, and Group IV (101+mm or 90 to 140 days) had 20% (23 out of 116) with developmental disabilities. The search for congenital malformations should be directed toward specimens from the earliest developmental stage. Information should be obtained from the mother regarding the history of exposure to a possible teratogenic agent and the time in pregnancy when exposure occurred. A correlation of these 2 factors and a monitoring system based upon it would facilitate isolation of the teratogenic agents. (4 refs.) - *S. Glinsky.*

University of British Columbia,
Vancouver 9, British Columbia, Canada

2167 TAKRANI, LAL B. Pseudo-mental retardation. *Indian Journal of Mental Retardation,* 2(2):87-97, 1969.

The concept of pseudo-MR has been used variably to indicate mistaken diagnosis of MR simultaneous with the arising of mental deficiency from etiologic factors other than the usual causes. Improved techniques for testing and evaluation make erroneous diagnosis improbable; however, errors still occur because the child appears MR. Manifestations of apparent MR under conditions of sensory deprivation, language difficulties, motor deficits, nutritional deficiency, cultural deprivation, and childhood schizophrenia indicate the importance of proper identification and treatment. (10 refs.) - *B. J. Grylack.*

B. J. Medical College & Civil Hospital
Ahmedabad-16, India

2168 HECHT, FREDERICK; & LOVRIEN, EVERETT W. Genetic diagnosis in the newborn. A part of preventive medicine. *Pediatric Clinics of North America,* 17(4):1039-1053, 1970.

Genetic diagnosis and counseling should be an integral part of preventive medicine, particularly when the birth of a child with a hereditary disease is suspected. Counseling rests upon a complete family history, an exact diagnosis based upon physical examination and laboratory studies, and knowledge of the literature. Genetic disorders are grouped under X-linked, autosomal dominant, recessive, chromosomal, and polygenic diseases. In the newborn period, diseases are either urgent or non-urgent medically. Counseling must proceed in stages and be clear and adapted to the intellectual and emotional capacities of the parents. The need for counseling will increase and requires qualified individuals who have sufficient training. Many others besides physicians can practice genetic counseling. (17 refs.) - *S. Glinsky.*

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Portland, Oregon 97201

2169 MILUNSKY, AUBREY; LITTLEFIELD, JOHN W.; KANFER, JULIAN N.; KOLODNY, EDWIN H.; SHIH, VIVIAN E.; & ATKINS, LEONARD. Prenatal genetic diagnosis (First of three parts). *New England Journal of Medicine,* 283(25): 1370-1381, 1970.

The ability to diagnose disorders prenatally upon analysis of amniotic fluid obtained by transabdominal amniocentesis greatly assists genetic counseling. Such analysis rests upon the working hypothesis that disorders can be diagnosed from cultured fibroblasts derived from skin. Amniotic fluid cells derive mainly from fetal skin and amnion. Broadly these disorders are chromosomal aberrations, sex-linked diseases, metabolic disorders and a miscellaneous group of diseases. Chromosomal aberrations are detectable through the cytogenetic study of cultured and noncultured amniotic-fluid cells. Both fetal karyotype and sex can be determined, thus enabling management of mothers who are carriers of X-linked disorders. Diagnosis of metabolic disorders rests upon analysis of the enzyme activity in cells cultured from amniotic fluid. (17 refs.) - *S. Glinsky.*

Massachusetts General Hospital
Boston, Massachusetts 02111

2170 MILUNSKY, AUBREY; LITTLEFIELD, JOHN W.; KANFER, JULIAN N.; KOLODNY, EDWIN H.; SHIH, VIVIAN E.; & ATKINS, LEONARD. Prenatal genetic diagnosis (Second of three parts). *New England Journal of Medicine,* 283(26): 1441-1447, 1970.

Metabolic diseases can be diagnosed prenatally through an analysis of the sphingolipid storage levels in cultured fibroblasts taken from the amniotic fluid. Diagnosis is possible in such lipid metabolism disorders as Niemann-Pick disease, Gaucher's disease, metachromatic leukodystrophy, Fabry's disease, globoid leukodystrophy, Tay-Sachs disease, generalized gangliosidosis, and Refsum's disease. The study of cultured amniotic-fluid cells and amniotic fluid also permits diagnosis of mucopolysaccharidoses and various amino acid and carbohydrate metabolism disorders. (46 refs.) - *S. Glinsky.*

Massachusetts General Hospital
Boston, Massachusetts 02111

2171 MULUNSKY, AUBREY; LITTLEFIELD, JOHN W.; KANFER, JULIAN N.; KOLODNY, EDWIN H.; SHIH, VIVIAN E.; & ATKINS, LEONARD. Prenatal genetic diagnosis (Third of three parts). *New England Journal of Medicine*, 283(27):1498-1504, 1970.

Analysis of cultured skin fibroblasts derived from amniotic fluid allows prenatal diagnosis of glycogen-storage diseases and other miscellaneous disorders. The latter include adrenogenital syndrome, congenital malfunctions, cystic fibrosis, I-cell disease, lysosomal acid phosphatase deficiency, myotonic muscular dystrophy, and others. Such prenatal diagnosis of metabolic disorders requires detailed knowledge of amniotic-fluid formation, kinetics, cellular components, and chemical composition, as well as of certain characteristics of cultured cells. It remains unclear to what extent the biochemical activities of cultured cells can be safely extrapolated to cells *in vivo*. Prenatal diagnosis raises new and important medical, ethical, moral, legal, and theological issues, particularly in regard to its application to the various areas of women's rights, population growth, limitation of families, and abortion. The technique of amniocentesis itself must be carefully evaluated. (28 refs.) - *S. Glinsky*.

Massachusetts General Hospital
Boston, Massachusetts 02111

2172 LITTLEFIELD, JOHN W. The pregnancy at risk for a genetic disorder. *New England Journal of Medicine*, 282(11):627-628, 1970. (Editorial)

A large series of successful amniocenteses renders it a legitimate procedure and makes necessary a tentative classification of pregnancies appropriate for amniocentesis. A suggested classification is severe disorders with high, moderate, and low genetic risk and treatable disorders with high genetic risk. This procedure should be made a part of the public health program, and all necessary measures should be taken to render it available to all who qualify for it. (6 refs.) *S. Glinsky*.

No address.

2173 LUNDSTROM, P. Monitoring the foetus in utero. *Nursing Mirror and Midwives Journal*, 130(4):20, 1970.

Advances in electronic techniques have made it possible with a minimal staff to obtain continuous and reliable information on the intrauterine pressure and fetal heart rate (FHR) during labor. Measurement of pressure with an open-end catheter, connected to a Statham P23 series strain gauge, facilitates detection of delayed recovery of the FHR to the basic level and reveals late deceleration. If the FHR pattern shows suspected evidence of fetal hypoxia, Saling's method of fetal blood sampling will provide information on the fetal acid-base state. The early detection of fetal hypoxia will allow for advance preparation of cesarean sections, and tocometry will distinguish between normal and abnormal uterine action. These measures should greatly diminish the risk of hypoxic fetal brain damage during labor. Measurement of the FHR during early labor cannot be achieved by this system, but it can be done by phonocardiography or ultrasonic methods. (4 refs.) - *B. J. Grylack*.

University of Umea
Umea, Sweden

2174 DYKES, J. RANALD W.; & STEVENS, DAVID L. Alterations in lumbar cerebrospinal fluid protein during air encephalography. *British Medical Journal*, 1(5688):79-81, 1970.

An investigation of a significant protein-concentration decline in cerebrospinal fluid (CSF) withdrawn from 30 neurological patients (57% showed a decline) during air encephalography following initial withdrawal of a specimen at lumbar puncture revealed no pattern of change correlating with method or volume of air distribution within the skull, CSF volume withdrawn, or clinical diagnosis. In 26 adult patients, air encephalography (40 min duration) was performed under neuroleptoanalgesia; in 4 children, it was performed under general anesthesia. Protein concentration (assayed by turbidometry and 3% sulphosalicylic acid) showed a larger decline when the initial lumbar CSF protein was elevated. In 7 cases, Lange colloidal gold curves performed on serial specimens and assayed for glucose and chloride concentrations revealed no definite pattern of rise or fall. Reduced readings during air encephalography emphasize a need to take CSF specimens for protein analysis before air insertion. (20 refs.) - *B. Berman*.

School of Medicine
Leeds, England

2175 GREGSON, NINA M. A technique for culturing cells from amniotic fluid. *Lancet*, 1(7637):84, 1970. (Letter)

A new technique for culturing cells from amniotic fluid obtained by amniocentesis or at hysterectomy was attempted on 22 fluid speci-

mens and yielded good chromosome preparations from all samples not heavily contaminated with red cells. Fluid was centrifuged at 1000 rpm for 5 minutes, then cells were resuspended in fetal-calf serum medium to permit setting up 2 leighton tubes. Fresh medium (0.6 ml) was added after 3 days, and the cultures were again gassed. Growth, epithelial in nature, normally began in small cultures; harvesting was generally on a primary culture. Cultures received 6 hours' colcemid treatment before digestion, then, after addition of distilled water, were centrifuged for 5 minutes and fixed in acetic acid. Mitotic rate and chromosome quality were excellent in most cultures. (2 refs.) - *B. Berman.*

University of Liverpool
Liverpool, England

2176 BENCH, R. J.; & VASS, A. Fetal audiometry. *Lancet,* 1(7637):91-92, 1970. (Letter)

Replication of Murphy and Smith's work in studying fetal neurological mechanisms failed to find, as previously reported, an increased fetal heart rate (FHR) after audio-frequency stimulation. A single pure-tone stimulus and an equal non-stimulus control interval (each of 15 sec duration) were applied to 2 groups of 20 mothers (at the abdomen near the fetal head)--1 group exposed to 500 cps; the other, to 4000 cps. For 1 minute after beginning of stimulation, the FHR record was analyzed in 10-second blocks to determine deviations. Failure to detect a significant FHR response may have been a result of inadequate sound-energy transduction into the mother's tissues. A follow-up study to determine if loud auditory stimulation of the mother (three 5-second pure-tone stimuli of 100, 2000, and 4000 cps presented at both ears) influences FHR through, possibly, a secondary humoral maternal stimulus disclosed a significant FHR effect. It appears that some fetuses react, while others do not, to maternal stimulation. (6 refs.) - *B. Berman.*

Royal Berkshire Hospital
Reading, England

2177 HARDING, P. G. R.; & SPENCE, ANN. Significance of maternal creatinine clearance in assessing fetoplacental function. *American Journal of Obstetrics and Gynecology,* 106(3):333-338, discussion, 338-339, 1970.

Reduced creatinine clearance and estriol excretion may reflect a decline in the placental function and in the health of the fetus; consequently, such a reduction should be monitored by determination of plasma creatinine levels in order to assess the degree to which falling renal function has contributed to the reduction in these levels. Twenty-seven patients with toxemia of pregnancy were monitored within 5 days of delivery for serum and urine creatinine and urine estriol levels determined by colorimetric (Jaffe reaction) and fluorimetric (Ittrich) methods, respectively. At birth the infants were classified as high- or low-risk based on the Apgar score, birth weight, and development of respiratory distress or acute fetal distress not attributable to causes other than placental insufficiency. Mean estriol excretion for 11 high-risk and 16 low-risk mothers was 24.8 ± 2.56 and 45.6 ± 3.17 mg/24 hours, respectively. Mean creatinine clearance for the high- and low-risk groups was 89.4 ± 4.67 and 130.1 ± 6.09 ml/min, respectively. Of the 11 high-risk mothers, 3 showed reduced creatinine clearance in the presence of normal estriol levels and 7 showed concomitant reduction of both levels. (15 refs.) - *M. S. Fish.*

University of Western Ontario
London, Ontario, Canada

2178 QUIGLEY, G. J.; RICHARDS, R. T.; & SHIER, K. J. Heat-stabile alkaline phosphatase: A parameter of placental function. *American Journal of Obstetrics and Gynecology,* 106(3):340-351, 1970.

The determination of levels of heat-stable alkaline phosphatase may provide a useful tool for monitoring placental function during pregnancy, particularly if the pregnancy is in a high-risk category. The experimental group included: 203 normal pregnant women, 60 pregnant diabetics (39 Class A, 4 Class B, 16 Class C and 1 Class D), 157 patients with toxemia of pregnancy (70 with mild pre-eclampsia, 47 with severe pre-eclampsia, 38 with hypertensive vascular disease uncomplicated with pre-eclampsia, 4 hypertensives with superimposed severe pre-eclampsia), 9 Rh-incompatible pregnancies, 4 with placenta previa, 4 with abruptio placentae, 16 classified as high-risk based on previous fetal loss or other medical history, and 10 twin pregnancies. Heat stable alkaline phosphatase was determined by the method of King and Armstrong after incubation of the sera for 1 hour at 56° C. Placental function of all high-risk pregnancies was also monitored by determining 24-hour urinary estriol levels. In male and non-pregnant female controls, mean levels of the enzyme were 0.9 and 0.6 K.A. units, respectively. Mean levels during normal pregnancy (in K.A. units) were: 28 weeks, 2.9; 32 weeks, 4.6; 30 weeks, 6.7; 40 weeks, 10.1; labor, 11.6; 5 days postpartum, 5.2. Of the

experimental groups, those showing abnormal enzyme and/or estriol levels were: 1 Class B diabetic had falling estriol levels; 13 Class C diabetic patients had enzyme levels at or below normal ranges, and of these, 5 delivered infants who developed severe respiratory distress syndrome; the group of patients with severe pre-eclampsia showed progressive lowering of mean estriol values relative to the severity of the toxemia and markedly elevated enzyme values which correlated individually to the duration and severity of the pre-eclamptic process; 2 patients with abruptio placentae presented with normal estriol values but 5 to 6 times the normal enzyme values (one infant was stillborn, the other had a low birth weight); 2 of the high-risk group had enzyme values in the normal to below-normal range and had their pregnancies terminated successfully when estriol values dropped sharply; 4 multiple pregnancy cases complicated with pre-eclamptic toxemia had enzyme values above normal, the increase in values correlating with the severity of the toxemia. Heat-stable alkaline phosphatase levels may reflect the functional maturity of the placenta. (15 refs.) - *M. S. Fish.*

St. Joseph's Hospital, McMaster University
Hamilton, Ontario, Canada

2179 MILLER, HERBERT C.; & FUTRAKUL, PRASIT. Use of bone age in predicting risk of incurring neonatal respiratory distress syndrome. *American Journal of Obstetrics and Gynecology,* 106(3):403-406, 1970.

X-ray visualization of the centers of ossification of the fetal knee may be a useful tool for the determination of fetal maturity which, in turn, is closely correlated with protection from the incidence of respiratory distress syndrome (RDS) in the newborn infant. The Ss were 175 live-born infants with birth weights between 1,001 and 2,500 grams. Data included: race and gestational ages from the mothers' records; weight of the infant at birth; X-rays of 1 knee on the third postpartum day (for 150 infants); and hourly observations which included respiratory rate, presence of grunting, color, physical activity, and oxygen concentration in respired air -- these latter observations being the basis for diagnosis of the presence and/or severity of RDS. Twenty-one Ss had mild RDS (respiration rate above 65 per minute); 12 had moderate RDS (tachypnea, grunting respirations, and cyanosis responsive to 40% oxygen); 23 had severe RDS (symptoms of mild RDS but with cyanosis not responsive to 40% oxygen and with abnormal pH and blood gas levels); 119 had no RDS symptoms. Severe RDS occurred in 4 of the 95 infants with visible calcium in the secondary centers of ossification (no mortality) and in 16 of the 55 infants without visible centers (7 deaths); RDS occurs 7 times more frequently among infants without visible centers of the knee than among those with visible centers of the knee. Data also substantiated the high correlation of birth weight with the presence of visible centers and of the high risk of developing severe and fatal RDS in infants of low birth-weights who do not have visible centers. Negro and white infants had comparable incidences of severe RDS. (6 refs.) - *M. S. Fish.*

University of Kansas Medical Center
Kansas City, Kansas

2180 WOOD, S.M.; JONES, L.; & MAISEY, M.N. Placental localization using $^{113m}$Indium and a portable scintillation detector: A comparison with Doppler ultrasound. *Journal of Obstetrics and Gynaecology of the British Commonwealth,* 77(2):139-144, 1970.

The use of $^{113m}$Indium and a scintillation detector for placental localization affords more accurate results than those obtained by the Doppler ultrasound technique. Eighty patients (49 following antepartum hemorrhage, 25 with an unstable presentation, and 6 prior to amniocentesis) were examined by the radio-active technique. $^{113m}$Indium, a decay product of $^{113}$Tin, was separated from the tin by ion-exchange chromatography and injected intravenously (100 µCi mixed with 5 ml of the patient's blood drawn 1 minute previously). After 15 minutes, radioactivity readings were taken on the abdominal surface with a probe by utilizing a grid for placement, and the sternum was employed as the reference point. The placental site was considered to be the region of highest activity. Evidence of actual placental placement was obtained when the patient either delivered spontaneously or was examined and delivered by cesarean section. The method resulted in a correct diagnosis of 64 (80%) of the cases including 9 of the 12 cases of placenta previa. Of the remaining 16 equivocal diagnoses, 2 were incorrectly diagnosed for placenta previa; however, this method gave no false negative diagnoses. When the radio-active and Doppler techniques were compared for 50 patients (7 with placenta previa), the latter method was unable to diagnose 14 of the patients and gave 6 false positives for placenta previa and 2 false negatives. While both methods fall far short of complete accuracy, the absence of potentially hazardous false negatives (incorrectly judging a placenta previa as being localized in the upper segment)

with the radio-active method recommends it as an initial screening procedure which can be followed up with other techniques when equivocal results are obtained. (15 refs.) *M. S. Fish.*

Guy's Hospital
London, S. E. 1, England

2181 MONTANARI, G. D.; GRISMONDI, G. L.; & ZANOIO, L. 3:4-Benzpyrene-induced *in vitro* fluorescence of fetal cell lipids in the diagnosis of ruptured membranes. *Journal of Obstetrics and Gynaecology of the British Commonwealth,* 77(2):148-150, 1970.

A fairly accurate diagnosis of ruptured membranes employs the *in vitro* production of a unique silvery, bluish-white fluorescence which 3:4-benzpyrene induces in fetal cell lipids. Of 62 specimens of amniotic fluid tested, 44 were obtained by transvaginal puncture or following spontaneous rupture during labor, and 18 came from amniocentesis associated either with cesarean section or with Rh antibodies. Specimens of vaginal fluid from 134 pregnant women with intact membranes served as the controls. Gestational ages were between 26 and 43 weeks for all pregnancies. The reagent, 1-2 drops of a 3:4-benzpyrene solution (0.00075 g/100ml), when mixed with a drop of the specimen, produced in the oval or polygonal fetal cells a silvery, bluish-white fluorescence under ultraviolet light. These cells were easily distinguishable from sebaceous cells containing lipid globules. All specimens obtained by amniocentesis contained fetal cells with the characteristic fluorescence, and the numbers of fetal cells increased with the length of the pregnancy. One false negative resulted from the 44 specimens obtained by spontaneous or artificial rupture. Vaginal fluids from the 134 control patients were all negative except for 1 specimen. While the method is simple and appears quite reliable, it will require additional study before it can be used to estimate the degree of fetal maturity. (5 refs.) - *M. S. Fish.*

University of Padova
Padova, Italy

2182 BARNETT, HANNA R.; & NEVIN, MARGARET. The value of the Nile blue test in estimating fetal maturity in normal and complicated pregnancies. *Journal of Obstetrics and Gynaecology of the British Commonwealth,* 77(2):151-155, 1970.

Management of complicated pregnancies can be aided by estimating fetal maturity with the Nile blue test for fat cell count in amniotic fluid. For the first group of 158 patients, the length of pregnancy (between 23 and 42 wks) was established clinically and from dates. The second group of 15 patients included cases of toxemia, placental insufficiency, and "small for date" babies, and gestation ages were less certain. Most specimens were obtained by amniocentesis. Equal amounts (1-2 drops each) of 0.1% Nile blue sulfate solution and the specimen were mixed on a slide and 500 cells were counted and classified in terms of % of fat cells which stain orange to brown with the reagent. In the first group, very few fat cells were found before the twenty-third week and the total number remained low up to the thirtieth week. After 36 weeks, the fat cell count was over 10% and rose to over 20% at 38 weeks for all but 1 patient. Between 39 and 42 weeks, the fat cell count was over 50% for the majority of the patients. The management of the complicated pregnancies in the second group was aided in 14 of 15 cases by utilizing fat cell count to estimate fetal maturity. The results showed that even in pregnancies of this type a fat cell count of over 10% is indicative of a pregnancy of over 36 weeks. (8 refs.) - *M. S. Fish.*

Lewisham General Hospital
London, S. E. 13, England

2183 RADTKE, H. W. Motorische Nervenleitgeschwindigkeit bei normalen Sauglingen und Kindern (Motor nerve conduction velocity in normal infants and children). *Helvetica Paediatrica Acta,* 24(4):390-398, 1969.

The motor nerve conduction velocities of 120 normal children (CA 2 wks to 15 yrs) with no neurological or metabolic disturbances were measured to establish exact velocity range standards for pediatric neurology diagnosis, particularly metachromatic leukodystrophy, polyradiculitis, diabetic neuropathy, and white-matter nervous system disorders. The velocities were taken by means of surface electrodes for the ulnar, median, tibial, and peroneal nerves. The results indicated a logarithmic increase in velocity from birth to the age of 4 yrs, when approximately twice the original values were registered. No additional increase occurred between 4 and 16 years. The normal ranges were large due to relatively large variations in the same individual and between individuals, which derived partly from the use of surface electrodes. These ranges, clearly demonstrated, permit a reliable evaluation of measurements in pathological conditions. (19 refs.) - *S. Glinsky.*

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CH-8032, Zurich, Switzerland

2184 NEWMAN, WARWICK. Foetal diagnostic tests. *Australian Journal of Mental Retardation*, 1(3):97-98, 1970.

Four outstanding fetal diagnostic tests provide accurate diagnosis of fetal condition and prediction of outcome. Two tests are antenatal (maternal excretion of estriol: amnioscopy) and 2 are intranatal--fetal blood pH and continuous fetal heart rate (FHR) recording. Amnioscopy is a simple outpatient procedure used beyond 36 weeks' gestation and facilitates fetal-blood collection. FHR recording, used in continuous monitoring after fetal-blood collection, is complementary to fetal-blood pH. Low estriol or thick meconium indicates necessary pregnancy termination. There is, as yet, no certain correlation between test results and subsequent MR occurrence, but the reduction of the threat of fetal asphyxia can only be helpful. (5 refs.) - *B. Berman.*

Queen Victoria Hospital
Melbourne, Victoria, Australia, 3000

2185 BISHOP, FRANK; BASS, FRANCESCA; & ANDERSON, EILEEN. The use of groups in the evaluation of mental retardation. *Australian Journal of Mental Retardation*, 1(1):23-26, 1970.

The combined technique of group diagnosis and evaluation is an effective method for quick identification of children who are unsuitable for group therapy, regardless of level. In a study of 41 children referred for assessment of MR, the Ss were seen initially by a psychiatrist and were referred subsequently to the weekly diagnostic group when prolonged contact and observation were found to be necessary. On alternate weeks, the group was to include younger children or those functioning at an earlier developmental level, as well as more mature or older children. Many Ss could not be discharged from the group without detriment to their progress, however, so that the sessions became therapeutic as well as diagnostic. Toys and other appropriate equipment were made available to the children and often aided the staff in evaluating abilities. Referral diagnosis listed 17 children as retarded and 13 as probably retarded. Final diagnosis showed significant emotional factors contributing to MR in 23 cases. Although certain disadvantages were apparent in the group diagnostic technique, it was found to be generally successful as a complement to individual interviews and psychiatric evaluation. In a group, the Ss seemed more at ease, and interaction with their peers and with parents could be observed effectively. (No refs.) - *B. J. Grylack.*

Royal Children's Hospital
Parkville, Victoria, Australia 3052

2186 BATTLE, CONSTANCE U. Another fetal assessment test: The fetal electroencephalogram. *Developmental Medicine and Child Neurology*, 12(3):373-375, 1970.

Although fetal EEG may not be able to give the most significant information on the fetal brain, it is an important index of the fetal condition during birth and can be utilized safely on the unborn child. The method is an extremely valuable one in the identification of fetal changes ensuing from drug administration to the mother. At the present time, human fetal EEG evaluations can be achieved solely on infants in the vertex presentation. If it becomes possible to monitor the EEG at an earlier gestational state in a satisfactory pregnancy, crucial information on fetal status and gestational age will be provided. (7 refs.) - *B. J. Grylack.*

Strong Memorial Hospital
Rochester, New York

2187 SCHULTE, F. J. Neonatal EEG and brain maturation: Facts and fallacies. *Developmental Medicine and Child Neurology*, 12(3): 396-398, 1970. (Letter)

Except in grossly pathological conditions, neonatal EEGs cannot be analyzed without knowledge of the infant's behavioral state and conceptional age. EEG patterns differ significantly, and use of the active sleep state which usually precedes quiet sleep is an unstable basis for comparison of different groups of newborns. Similar problems arise in monitoring EEGs in older children and adults but without the additional difficulties of recording newborn eye movements and respiration. Since the abnormal pattern during some states can mimic the normal recording during others, routine EEGs have to include behavior and age monitoring for routine and research purposes in order to be valid. (16 refs.) - *B. J. Grylack.*

Universitats-Kinderklinik
34 Gottingen, West Germany

2188 BEISCHER, N. A.; BROWN, J. B.; & MACAFEE, C. A. J. Maternal excretion of oestriol and fetal damage. *Australian Journal of Mental Retardation*, 1(2):46-54, 1970.

The findings of a 6-year study in which estriol excretion was measured in over 5,000

pregnancies present a strong argument for using estriol measurement as a screening test at 30-36 weeks in all maternity patients. Patients with low estriol secretions had significantly ($p<.001$) greater incidence of anemia, hypertension, and fetal mortality; the infants had significantly ($p<.001$) greater intrauterine growth retardation. Estriol level was a sufficiently accurate predictor of outcome for the fetus in cases of mild antepartum hemorrhage; in cases of mature pregnancies, a low estriol level indicated termination. Of 7 patients who had perinatal deaths, 2 had hypertension, 2 had severe pre-eclampsia, 6 had a placenta weighing less than 350 g, and all had abnormally low estriol values. The fetus at-risk with a low estriol value generally did not exhibit the classical features of placental insufficiency at birth. Estriol estimations on 22 patients whose pregnancies had terminated in perinatal deaths showed 19 cases of low maternal estriol excretion. In 58 patients with low estriol excretion, there were 22 perinatal deaths and 41 infants with intrauterine growth retardation. Estriol level appears to provide an accurate index of placental function and fetal well being. (14 refs.) - *J. K. Wyatt.*

University of Melbourne
Parkville, Victoria, Australia 3052

2189 RICHARDSON, H. BURTT; & OZER, MARK N. Diagnostic evaluation of children with learning problems: Role of the pediatrician. *Clinical Proceedings of Children's Hospital of the District of Columbia,* 26(4):119-125, 1970.

A communication system used by the physician for a diagnostic evaluation of a child with learning problems should include a parents' report, teacher's report, physician's examination, and neurological examination. Data obtained should be used to modify the child's learning environment to increase success experiences. The teacher reporting form is designed to obtain information on how the child learns, how the teacher gets the child's attention, and the types of reinforcement the child prefers. The parent reporting form inquires about successful social behavior at home and how the child feels about himself. It also points out some reinforcement concepts. The teacher and parent forms avoid emphasizing what the child does poorly and focus on areas where the child has been successful. A 15-minute neurological examination for children from 4 to 8 years of age provides data on the conditions required for learning, how the child responds to encouragement, how the child processes information, how he is alerted, visual alertness, visual processing, auditory skills, tactile processing, and motor-kinesthetic skills. The physician then provides parents and teachers with diagnostic information designed to affect changes in the educational environment in directions which will enhance successful learning. (5 refs.) - *J. K. Wyatt.*

George Washington University School of Medicine
Washington, D. C.

2190 APPENZELLER, OTTO; SNYDER, RUSSELL, D.; & KORNFELD, MARIO. Sural nerve biopsies in pediatric neurological disorders. *Developmental Medicine and Child Neurology,* 12(1):42-48, 1970.

Sural nerve biopsy can be of diagnostic aid for patients with neuromuscular and other neurologic disorders and can provide information on peripheral nerve involvement which can not be detected by other diagnostic procedures. Ss were 18 children (CA 6 mos to 15 yrs) with neurologic disorders. In addition to clinical and electrodiagnostic studies, sural nerve segments from the ankle were removed and biopsied. In 3 patients with clinical features of polymyositis, 2 had severe involvement of the sural nerve; of 3 cases with Lowe's syndrome, presumptive clinical evidence of peripheral nerve involvement was not confirmed by sural nerve biopsies or by nerve-conduction velocities; 3 or 4 Ss with degenerative central nervous system disease of unknown origin had normal sural nerves. All 3 patients with hypotonia had sural nerve neuropathy. In 3 Ss with clinical evidence suggesting peripheral nerve involvement, biopsy studies of the sural nerve confirmed the diagnosis. Clinical diagnosis of no peripheral nerve involvement in 1 S with hydrocephalus and in 1 with motor neuron disease was confirmed by sural nerve biopsy. Four Ss were shown by this procedure to have peripheral nerve involvement in the absence of clinical evidence, and 4 Ss showed no sural nerve neuropathy despite clinical symptoms of peripheral nerve involvement. (3 refs.) *M. S. Fish.*

University of New Mexico School of Medicine
Albuquerque, New Mexico 87106

2191 CLARKE, LINDA G. Brain midline structure position in mentally handicapped subjects measured by ultrasonic echoencephalography. *American Journal of Mental Deficiency,* 74(5):594-598, 1970.

Echoencephalography, in combination with other diagnostic procedures, may be of value in the diagnostic assessment of mental handicaps. Ss were 116 institutionalized patients

with cerebral palsy (CP), epilepsy, hydrocephalus, microcephalus, or senile dementia, or a combination of 2 or more of these defects. Ten normal volunteers served as controls. The Eskoline 20 diagnostic ultrasonascope, capable of emitting 1,000 pulses/second at an average power level of 10 milliwatts/sq cm, was utilized to produce midline images which were displayed on an oscilloscope and photographed. From these traces, the midline position was calculated. Results showed 14 abnormalities of midline position: 6 of 32 epileptics, 1 of 16 epileptics with other conditions, 3 of 23 Ss with CP alone, 1 of 17 with CP and other conditions, and 3 of 34 cases of senile dementia. Skull X-rays of the abnormal Ss did not confirm the evidence of midline displacement. The technique requires care in its administration and interpretation because the angle of incidence of the waves on the reflecting surface is critical and possible skull asymmetry and/or restlessness of the Ss may make accurate measurement difficult. (12 refs.) - *M. S. Fish.*

Charles Burns Clinic
Birmingham 13, England

2192 Unusual hair defects called clue to congenital abnormalities. *Journal of the American Medical Association,* 211(6): 918-919, 922, 1970.

The observation of congenital hair defects in children should alert the physician to the possibility of other abnormalities, particularly those associated with MR, malnutrition, exposure to toxins, and amino acid metabolism. Ss with hair defects fall into 2 categories based on the location of the defect: defective hair follicles appearing in congenital alopecia, congenital hypotrichosis, and dysplasia, and defects of the hair shaft including such syndromes as "paint brush hair," "twisted hair," "bamboo hair," "spangled hair," and "beaded hair." More than one of these defects can occur in the same individual; some are associated with MR, deafness, and/or aminoaciduria and myasthenia gravis. In addition to the investigation of the hair and scalp, examination of Ss with these defects should include also evaluation of teeth, nails, skin, and amino acid levels of the blood and urine. (No refs.) - *M. S. Fish.*

## MEDICAL ASPECTS--PREVENTION AND ETIOLOGY (GENERAL)

2193 Researchers plan to chart life before birth. *Medical World News,* 10(8): 42-43, 1969.

The exploration of prenatal causes of congenital defects is the aim of a nonprofit foundation which expects to prepare and utilize improved medical records to aid in the realization of its goal. This prospective pilot study will initially include 500 couples who will record and report any pre- and post-conception factors and hazards, both environmental and medical, which could affect offspring: use of drugs, tobacco, vitamins, contraceptives, hormones, medicines. From this population, investigators expect to accumulate data on approximately 100 births. Congenital defects occur in about 7% of live births; of these, less than 25% are hereditary, and other causes are known for only an additional 15%. Of the 3% of the total population who are MR, the cause of this defect is known for only 20%. (No ref.) - *M. S. Fish.*

2194 HOLDAWAY, M. D. Some common causes of intellectual handicap. *Intellectually Handicapped Child,* 9(1):8-10, 1969.

For the 1% of the MRs with IQs <50, factors inhibiting the proper development of intelligence include heredity, pregnancy and birth problems, and childhood diseases and accidents. Hereditary factors include low IQ parents, metabolic disorders, chromosomal defects and abnormalities in the growing fetus. Pregnancy and birth causes include illness of the mother (especially German measles and toxemia), premature delivery, hemorrhage in the baby's brain during birth, and severe jaundice during the newborn period. Childhood dangers include accidental head injury, poisoning, untreated meningitis, and prolonged convulsions brought on by high fever. Despite present knowledge, causes are still unknown in approximately 50% of intellectual handicap cases. (No refs.) - *S. Glinsky.*

Otago Medical School,
Dunedin, New Zealand

2195 O'DRISCOLL, KIERAN; JACKSON, REGINALD J. A.; & GALLAGHER, JOHN T. Prevention of prolonged labor. *British Medical Journal*, 2(5655):477-480, 1969.

In a prospective study of 1,000 primigravid deliveries, only 1 labor exceeded 24 hours in duration. Of 204 women treated to accelerate the progress of labor, 84 had artificial rupture of the membranes, 35 had artificial rupture of the membranes and intravenous oxytocin, and 85 had oxytocin only. The only perinatal death that occurred after oxytocin was a second twin. There were 4 suspected cases of residual brain damage, all of which resulted from hypoxia. In only 1 of these cases had oxytocin been infused to accelerate labor. Properly supervised stimulation of labor is safe to mother and child; it eliminates the problem of occipitoposterior position, results in a sharp decline in forceps delivery, and obviates the need for massive analgesia. (18 refs.) - *J. C. Moody.*

National Maternity Hospital
Dublin 2, Ireland

2196 CARTER, C. O. VII-Genetic counseling. *Lancet*, 1(7609):1303-1305, 1969.

The rising demand for genetic counseling must be met by increased knowledge and understanding of factors connected with it. The objectives of genetic counseling are to answer questions on risks of recurrence in another child when a member of the same family has some malformation or disease of genetic origin, to draw attention to a special risk child being born, and to prevent an increase in the number of children born predisposed to serious handicap. Risks must be accurately assessed on the basis of a correct diagnosis, family history, and knowledge of how the particular condition is inherited. Genetic counseling will depend on a good grasp of genetics and knowledge of the various conditions of random, high, and moderate risk. (18 refs.) - *S. Glinsky.*

No address.

2197 ROBERTS, D. F.; CHAVEZ, J.; & COURT, S. D. M. The genetic component in child mortality. *Archives of Disease in Childhood*, 45(239):33-38, 1970.

Mortality in 1,041 hospitalized children over a 7-year period was attributable to genetically determined disease in 42% of the cases. Although the genetic disease may not necessarily have been the immediate cause (for example, in children with fibrocystic pancreatic disease, pneumonia may have been the immediate cause), ultimate cause was genetic. Disease categories included single-gene effects (88 cases), chromosomal disorders (25), disorders of probable but complex genetic etiology (326), disease of doubtful genetic origin (179). Limitations of this kind of survey are its high degree of subjectivity and the interaction between an individual's genetic make-up and his developmental environment. Nevertheless, the findings are noteworthy for 11% of deaths (8.5, simple genetic disease; 2.5, chromosomal aberrations) constituted the most distinguishable part of the spectrum. Even in those disease causes labeled environmental and doubtful, there may be some hidden genetic component. (5 refs.) - *B. Berman.*

University of Newcastle upon Tyne
Newcastle, England

2198 ROBERTS, C. J. Developmental and neurological sequelae of the common complications of pregnancy and birth. *British Journal of Preventive and Social Medicine*, 24(1):33-38, 1970.

Although the relationship between certain birth complications and neurological status has previously been considered to be indirect, this relationship may actually be direct through the association between neurological status and certain pregnancy complications. Neurological and developmental assessments were made on 336 infants at 2 months of age and 1 year. Findings were related to pregnancy and birth histories. Obstetric complications considered were vaginal bleeding, toxemia, hyperemesis, anemia, and birth difficulties. Incidence of low neurological scores in infants who experienced both pregnancy complications and birth difficulties was 3 times higher than it was for infants who experienced birth difficulties following a normal pregnancy. Developmental scores at age 1 year were significantly lower for infants of mothers who experienced bleeding, bleeding with other complications, and toxemia with other complications. The mean developmental score was lower for infants whose mothers had experienced more than one obstetric complication. Although an association was found between birth difficulties and low neurological score at age 2 months, it had disappeared by age 1 year. The summation of pregnancy complications appeared to be clearly associated with increased evidence of developmental delay at 1 year. (33 refs.) - *J. K. Wyatt.*

No address.

2199 ROBERTS, A. H. Neurological complications of systemic diseases - I. *British Medical Journal*, 1(5687):33-35, 1970.

Lesions of the central nervous system related to malignant neoplastic proliferation or carcinoma are due to metastatic deposits or to immunological, metabolic, or nutritional aberration mechanisms. Carcinoma of the bronchus, breast, stomach, and ovary and the leukemias are metastatic complications. Among the nonmetastatic complications are myopathy, dermatomyositis, sensory and motor polyneuritis, sensory neuropathy, subacute cerebellar degeneration, the encephalopathies, and the reticuloses. Treatment is generally of the underlying condition and frequently occurs prior to the onset of neurological complications. Estimations of neurological complications in diabetes mellitis range from 4% to 93%. Clinical syndromes include sensory polyneuritis, mononeuritis, sensorimotor polyneuritis, diabetic amyotrophy, diabetic pseudotabes, and acute cranial nerve palsies. Treatment involves control of the blood sugar level as well as specific symptom relief. (No refs.) - *J. K. Wyatt.*

London Hospital
London, England

2200 GRIMWADE, J.C. The management of fetal distress with the use of fetal blood pH: A clinical review. *American Journal of Obstetrics and Gynecology*, 106 (2):266-271, 1970.

Determination of fetal blood pH can provide useful information for management of patients during labor; a drop in the pH to below 7.25 may be an indication for intervention. Management of 137 patients developing fetal distress (fetal heart rate > 160 or < 120 beats/minute and/or the presence of meconium) during the first stages of labor was determined by measurement of fetal blood pH. When the pH was below 7.15, patients were delivered immediately; pH's between 7.15 and 7.24 usually prompted continued monitoring by the collection of additional specimens. Above a pH of 7.24, additional measurements were made if further signs of distress became evident. A total of 105 patients (77%) had initial fetal blood pH of 7.25 or more; in 6 of these, the pH declined later to below 7.25. Of the remaining 32 patients with fetal blood pH of less than 7.25, 4 had blood pH of less than 7.15, and repeat estimates of pH for 18 patients with initial levels between 7.15 and 7.24 showed that in 10 the pH remained below 7.24 but rose to 7.25 or above for the other 8. Of 14 patients with predelivery pH of 7.20 or less and delivered operatively, 2 were stillborn, 2 died shortly after birth and were delivered early with depressed blood pH as the only criterion. Apgar scores for 31 (23%) infants were 6 or less; these scores were significantly lower for infants with fetal blood pH of less than 7.25 than they were for those with higher levels. (12 refs.) - *M. S. Fish.*

University of London
London, England

2201 JENNINGS, A. N.; & MILLS, MILLIE. Some social measures in the prevention of mental retardation. *Australian Journal of Mental Retardation*, 1(4):115-118, 1970.

Although primary prevention of MR is of first importance, much can be done to reverse the effects of initial adversity. Social and emotional deprivation can cause retardation, but in some cases, a pseudo or secondary MR appears that can be reversed by favorable conditions. Careful diagnosis is imperative (for deafness may be mistaken for retardation) as is avoidance of gloomy prognosis. Progress in dealing with MR requires suitable parental understanding, and intensive psychological treatment within MR hospitals. (5 refs.) - *B. Berman.*

Marsden Hospital
Westmead, New South Wales, Australia, 2145

2202 DANKS, DAVID M. Genetic counselling. *Australian Journal of Mental Retardation*, 1(4):119-122, 1970.

Genetic counseling should be a part of prognostication and applied confidently by any doctor as in discussing the anticipated course of any disease. A specialist in any disease should be able to provide genetic counseling in that disease. Requirements for counseling include: diagnosis (precise, but consideration of subtle variants that reflect different inheritance patterns), knowledge of fundamental genetics, knowledge of literature pertaining to diagnostic subtleties, awareness of the emotional make-up of the individual being counseled, and possession of appropriate personality, attitudes, and beliefs. (No refs.) - *B. Berman.*

University of Melbourne
Parkville, Victoria, Australia

2203 ALBERMAN, EVA D.; & GOLDSTEIN, H. The 'at risk' register: A statistical evaluation. *British Journal of Preventive and Social Medicine*, 24(3):129-135, 1970.

A mathematical model can be used to determine the optimal allocation of resources among groups of children with differential handicap risks in ways that detect a maximum number of handicaps. Data from the Perinatal Mortality Survey which was composed of information on the 17,418 births which occurred in England, Wales, and Scotland during the first week in March 1958 were used to simulate a register to predict severe educational and physical handicaps which would not have been identified at birth. A handicap was designated as cerebral palsy, severe hearing defect, blindness or partial sight, severe MR, or multiple handicap. There were 167 children who fell into this 'unseen handicap' category. Risk-of-handicap studies identified the highest risk of handicap was in fifth born or later children who were delivered in an abnormal fashion and were ill during the neonatal period. The optimal composition of a 'risk' register would contain all children with these attributes. In this group were 13.2% of all births and 26.3% of all children later identified as handicapped. Detection rate is greater with 3 or more risk groupings than with 2. When resources are optimally divided between high- and low-risk groups, detection rate is greatest. The amount of resources to be spent per child in searching for 'invisible handicaps' depends on the resources available and the current detection rate. As the basic detection rate rises, the proportion of resources used to detect 'invisible handicaps' in low-risk children should increase. (14 refs.) *J. K. Wyatt.*

National Bureau for Cooperation in Child Care
1 Fitzroy Square
London, W.1, England

2204 ADAMSON, T. M. Perinatal factors influencing mental deficiency. *Australian Journal of Mental Retardation*, 1(2): 55-57, 1970.

An inadequate oxygen supply and substrate load and the presence of abnormal metabolites can have a critical effect on the metabolism of neurons. Deficits in the transport of these substances are most likely to occur during the transition from intrauterine to extrauterine life. Defects in oxygen transport as in birth asphyxia are associated with neonatal mortality and neurological abnormalities. Resuscitation should be immediately initiated for apneic newborns. Males and low-birth-weight infants are high-risk groups for defects in substrate load, as in hypoglycemia. Cause of high risk appears to be a lack of liver glycogen. Sequelae of neonatal hypoglycemia are severe and may include death, MR, and/or neurological defects. In cases of abnormal metabolites, there appears to be a progressive relation between neonatal hyperbilirubinemia starting at levels of 16 to 19 mgm % and later motor and mental development. Neurological damage is correlated with the free diffusible unbound bilirubin. High-risk infants for hyperbilirubinemia are immature, hypoxic, acidotic, and hypoglycemic, and have low serum albumin levels. Birth weight below 2,000 gm is associated with moderate to severe handicap. (20 refs.) - *J. K. Wyatt.*

Monash University
Melbourne, Australia 3000

2205 CHAMBERLAIN, ROMA: & HILL, G. B. Deaths of children in Greater London 1966. *British Journal of Preventive and Social Medicine*, 24(3):136-145, 1970.

Of 3,222 children under 15 years of age who were residents of Greater London and died in 1966, 1,273 died from causes related to abnormality of pregnancy or birth, 632 from congenital anomalies, 528 from respiratory diseases, and 133 from neoplasms. Forty-one percent were female. Fifty-five percent died before they reached one month of age, another 23% died during the remainder of the first year, and 22% died after age one year. Congenital abnormalities were a major cause of death at all ages. Although lower social class groups had the highest death rate among the babies, the highest rates for the 10 to 14 year old group were among social classes I and II. Higher social groups evidenced a significantly higher incidence of deaths from neoplasms. A special study of 56 cases in which death had been related to respiratory disease revealed one case of spastic quadriplegia and one case of MR. (15 refs.) - *J. K. Wyatt.*

No address

2206 TURNER, GILLIAN. X linked mental retardation. *Australian Journal of Mental Retardation*, 1(2):61-62, 1970.

X-linked MR is relatively common and can be diagnosed by one feature, the lack of signs. Of 29 affected males from 6 families, all had normal mothers and affected maternal uncles or maternal male cousins. The majority was moderately MR, and apart from MR, all

were essentially normal. Family histories of an additional 23 moderately MR males revealed a somatically normal brother in 8 families, an MR brother in 9 families, a history compatible with X linkage without a retarded brother in 4 families, an affected sister in only 1 family, and a mildly retarded epileptic mother in 1 family. Thirteen of the 23 families investigated had an affected male relative. There were 15 affected male siblings, 36 unaffected sisters, and 24 unaffected brothers. The physical normality of these males provides the diagnostic clue to the etiology of their MR. Genetic counseling after diagnosis is essential in these cases. All Ss had normal facial features, head circumference, and height. None evidenced any neurological abnormality, had a history of encephalitis or meningitis, or demonstrated one major or 3 minor congenital abnormalities. (2 refs.) - *J. K. Wyatt.*

Grosvenor Hospital
Summer Hill, New South Wales, Australia 2130

2207 LYNCH, HENRY T.; MULCAHY, GABRIEL M.; & KRUSH, ANNE J. Genetic counseling and the physician. *Journal of the American Medical Association,* 211(4):647-651, 1970.

The family physician should be capable of providing genetic counseling to families with known or suspected genetic disease. In addition to information about risk and etiologic factors, this counseling should include diagnosis, therapy, prognosis, case finding, and prevention. The risk information can often afford the family with reassurances since individuals often are not aware of the full biologic implications of the disease, and recent advances in the diagnosis and treatment of a number of these often can afford prevention of the onset of the sequelae of the disease. Related to the counseling itself, are the problems of adoption, fertility, abortion, and teratology, all of which have moral, religious, or legal aspects which are of importance to the case. (6 refs.) - *M. S. Fish.*

Creighton University School of Medicine
Omaha, Nebraska 68131

2208 CARTER, CEDRIC. Antenatal paediatrics by amniocentesis. *Archives of Disease in Childhood,* 45(240):157-158, 1970. (Editorial)

Amniocentesis, until recently employed principally in cases of Rh-isoimmunization, is becoming a useful tool in genetic counseling where high-risk pregnancies are involved. These include pregnancies involving suspected chromosome anomalies which can produce infants with diseases such as Down's syndrome and inborn errors of metabolism. The procedure is generally useful only for parents who will accept the risk of the procedure and termination of the pregnancy if the fetus is found to be defective; however, its use as a screening tool for a large proportion of all pregnancies will be possible as the techniques of the procedure, including cell culture and cytogenetics, are refined. The procedure can also be helpful in monitoring pregnancies of women over 40 years of age. This group is believed to produce nearly 20% of all patients with Down's syndrome. (9 refs.) - *M. S. Fish.*

Institute of Child Health
Guilford Street
London W. C. 1, England

## MEDICAL ASPECTS--ETIOLOGIC GROUPINGS

*Infections, intoxication, and hemolytic disorders*

2209 MACLEOD, S. C.: PARKER, A. S.; & MORGAN, D. A. Correlation of estrogen excretion with intrauterine transfusion. *Canadian Medical Association Journal,* 103(6):600-601, 1970.

Monitoring of maternal urinary estrogen excretion can provide useful indices of the condition of the fetus when Rh immunization complicates the pregnancy. Urinary estrogen excretions were determined for 20 patients with severe erythroblastosis requiring 1 to 3 intrauterine transfusions (IUT). When estrogen levels remained above lower limits of the normal range, 7 of 8 pregnancies terminated in

successful deliveries. Similar results occurred in 2 of 3 pregnancies when intervention was carried out on patients whose estrogen levels were falling. All pregnancies accompanied by consistently low estrogen levels and by a sudden fall in levels after IUT, resulted in stillbirths and neonatal deaths. A sudden fall in estrogen levels may indicate that the fetus has died or is in jeopardy and that intervention is indicated. (7 refs.) - *M. S. Fish.*

Department of Obstetrics and Gynecology
Dalhousie University
Halifax, Nova Scotia, Canada

2210 HANSHAW, JAMES B. Idoxuridine in herpesvirus encephalitis. *New England Journal of Medicine,* 282(1):49, 1970. (Editorial)

Recent results from the use of idoxuridine (IDU) for the treatment of patients with herpesvirus encephalitis indicate that chemotherapy may soon become an increasingly feasible therapeutic measure against viral diseases. Of 13 patients, 4 of the 6 who were treated with IDU fully recovered (2 died before treatment could be completed); 3 of the 7 patients who were untreated died and the remaining 4 never fully recovered. The side effects of IDU (stomatitis, leukopenia, alopecia) were reversible. Although the patients were not randomly selected and the diagnosis was not definitely established by analysis of brain tissue, the results of the study are promising and reinforce observations of the efficacy of other antiviral substances such as floxuridine in the treatment of cytomegalovirus pneumonitis and of cytosine arabinoside against severe varicella-zoster infections. (5 refs.) - *M. S. Fish.*

No address

2211 FALLSTROM, S. P. On the endogenous formation of carbon monoxide in full-term newborn infants. *Acta Paediatricia Scandinavica,* Supplement 189, 1969. 27 p.

Since carbon monoxide (CO) is a normal metabolite of hemoglobin, the determination of the percent of CO saturation of hemoglobin (COHb) in the blood of newborn infants has provided useful information on a number of hemolytic conditions. Among these are Rh-hemolytic diseases which often cause very high COHb values. Icteric infants without blood group incompatibility show increased COHb levels and CO elimination -- both correlated significantly to bilirubin concentration. Measurement of COHb levels also shows that increased hemoglobin catabolism frequently occurs in connection with ABO incompatibility among infants of ABO heterospecific pregnancies. The determination of COHb levels in the infant is a precise and simple procedure and can be useful in the study of the pathogenesis of jaundice and of hemolytic diseases provided factors, such as exogenous CO levels and effects of pulmonary CO elimination, are taken into account. (80 refs.) *M. S. Fish.*

University of Goteborg
Goteborg, Sweden

2212 GRAW, ROBERT G.; & CLARKE, RONALD R. Chlorpropamide intoxication -- Treatment with peritoneal dialysis. *Pediatrics,* 45(1):106-109, 1970.

Peritoneal dialysis was of little value in removing chlorpropamide (Diabinese) from the serum of a 3-year-old male Caucasian. The patient developed deep rapid respirations, a staggering gait, and indistinct speech, and on admission, he was comatose. Initially the symptoms were attributed to the ingestion of fifty 1 1/4 gr tablets of aspirin; however, the possibility of multiple drug ingestion and clinical deterioration prompted the initiation of peritoneal dialysis. Later evidence indicated that the patient had also ingested approximately ten 250 mg tablets of chlorpropamide. Concentrations of this drug in the dialysate were low, and urine samples were negative. The patient suffered permanent neurologic damage including motor aphasia associated with recurrent convulsions and inability to feed himself and walk. While the hypoglycemia caused by the chlorpropamide was readily controlled, the period of hypoglycemia preceding admission likely caused the irreversible neurologic sequelae. Management of patients with chlorpropamide poisoning should include prompt maintenance of blood sugar levels. Removal of the drug by dialysis might be effective if initiated before protein binding is complete. (19 refs.) - *M. S. Fish.*

National Cancer Institute
Bethesda, Maryland 20014

2213 Laboratory diagnosis of rubella. *British Medical Journal,* 3(5717):237-238, 1970. (Editorial)

Virological investigation of patients exposed to or having a rubella-like illness is important due to the inaccuracy of clinical diagnosis. It has been reported that clinical diagnosis was accurate in only 20 of 45 patients with a rubella-like illness. The clinical diagnosis of rubella in pa-

tients exposed to a rubella-like illness was correct in a minority of cases although only 10% failed to show evidence of a previous infection. The hemagglutination-inhibition test has improved the diagnosis of rubella and is more reliable than the complement-fixation test if serum samples are taken within 48 hours of the onset of symptoms or within 2 weeks of exposure. The complement-fixation test and the determination of rubella-specific IgM antibody are more appropriate for patients presenting later; however, virological techniques can offer little diagnostic aid for patients who have been ill more than a month. (9 refs.) - *M. S. Fish.*

No address

2214 Primary amoebic meningoencephalitis. *British Medical Journal,* 1(5696):581, 1970. (Editorial)

Prompt treatment with amphotericin B is indicated in cases of proved or suspected infection by the amoeba, *Naegleria sp,* probably the only known free-living amoeba which is pathogenic to man. In a recently reported case, amphotericin B cleared the amoeba from the cerebrospinal fluid, although the patient died. The patient's brother who developed similar clinical symptoms recovered after prompt treatment with the drug. The possibility of primary amoebic meningoencephalitis should be considered on admission and before the patient is unable to respond to conventional therapy. Careful examination of wet preparations of cerebrospinal fluid can readily distinguish the amoeba from leukocytes. (15 refs.) - *M. S. Fish.*

2215 NEVA, FRANKLIN A. Amebic meningoencephalitis - A new disease? *New England Journal of Medicine,* 282(8):450-452, 1970. (Editorial)

Retrospective diagnoses of several isolated cases of amoebic meningoencephalitis indicate a widespread occurrence of the disease but do not demonstrate whether or not this infection in man of free-living amoebas is recent in origin. Since the first published report of the disease in Australia in 1965, cases have been reported in Florida, Texas, and Virginia. The illness has been retrospectively identified in Virginia and Czechoslovakia and is nearly always associated with hot-weather swimming in fresh-water lakes containing considerable organic material. Only species of *Naegleria* have been cultured in fatal cases of the disease in humans. Present criteria do not permit ready classification of these organisms, and more basic information about them is needed in order to clarify their role in human disease. (18 refs.) - *M. S. Fish.*

No address.

2216 GORODISCHER, RAFAEL; LEVY, GERHARD; KRASNER, JOSEPH; & *YAFFE, SUMNER J. Congenital nonobstructive, nonhemolytic jaundice: Effect of phototherapy. *New England Journal of Medicine,* 282(7):375-377, 1970.

Phototherapy successfully lowered serum bilirubin concentration in an older infant with congenital nonobstructive, nonhemolytic jaundice unresponsive to phenobarbital therapy. Therapy (six 30-watt GE daylight bulbs 36-inches long) was begun at 19 weeks of age, and within 3 days, serum bilirubin fell from 35.4 mg/100 ml to 19.6, with an additional decline to 9.0 mg in the following 3 days. Skin color changed from deep golden yellow to green and then to normal. Increased light (350 foot-candles at 45 cm from light source and maintained for 12 hrs/day for 60 days) kept serum bilirubin concentration between 6.3 and 8.3 mg/100 ml. Persistent mild scleral icterus was the only abnormal sign. Discontinuation of phototherapy for 57 hours produced a sharp rise in serum bilirubin from 7.9 to 11.7 mg/100 ml, preceded by reappearance of skin jaundice. Phototherapy is apparently a valuable measure in this kind of case. (11 ref.) *B. Berman.*

*State University of New York
Buffalo, New York 14222

2217 KARON, MYRON; IMACH, DANIEL; & SCHWARTZ, ALLEN. Effective phototherapy in congenital nonobstructive, nonhemolytic jaundice. *New England Journal of Medicine,* 282(7):377-380, 1970.

Light therapy, instituted in a newborn infant diagnosed with congenital nonobstructive, nonhemolytic jaundice, reduced serum bilirubin levels--by the age of 60 days--from a high of 33 mg/100 ml to 8.5 mg. Hospital phototherapy utilized a bank of eleven 20-watt daylight fluorescent bulbs, shielded by 1/2-inch plexiglas placed 23 to 25 inches from the child. Bilirubin determinations were made on capillary blood, with total and direct fractions assessed after 30 minutes of incubation. In 3 separate urine specimens, the percentage of salicylate excreted as glucuronide was at least 1/3 to 1/4 of normal; the major metabolite of the urine was salicyluric acid. During the first 5 months of life, all examinations (height, weight, developmental, neurologic, sleep patterns, and ophthalmologic) proved normal. The results indicate that



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phototherapy can control the level of indirect serum bilirubin in an infant with the Crigler-Najjar syndrome. (18 refs.) - *B. Berman.*

Children's Hospital of Los Angeles
Los Angeles, California 90027

2218 COLEMAN, STEPHEN J.; AULD, ELIZABETH B.; CONNOR, JAMES D.; ROSENMAN, SANFORD B.; & WARREN, GEORGE H. Relapse of *Hemophilus influenzae* type b meningitis during intravenous therapy with ampicillin. *Journal of Pediatrics,* 74(5):781-784, 1969.

A 21-month-old Negro girl is the first reported case of relapse during ampicillin treatment of *H. influenzae* type b meningitis, in which a generally accepted therapeutic dose of the antibiotic was administered by interval intravenous infusion during the entire therapeutic course. Cerebrospinal fluid (CSF) and serum specimens obtained after the last ampicillin dose were frozen, then assayed for ampicillin concentration. *H. influenzae* sensitivity was tested by a plate method incorporating the antibiotic in a chocolate agar. The bacilli obtained from the CSF were sensitive to ampicillin in a concentration of 0.4 mg/ml. Persistence of *H. influenzae* in the CSF was probably due to the low concentration of ampicillin, and the patient's relapse was caused by inadequate penetration of the antibiotic. This case demonstrates the need for maintaining high dosage levels of ampicillin throughout treatment. (10 refs.) - *B. Berman.*

University of Miami School of Medicine
Coral Gables, Florida 33146

2219 LAND, VITA J.; ZARKOWSKY, HAROLD S.; & VIETTI, TERESA J. Phototherapy for jaundice. *New England Journal of Medicine,* 282(7):397, 1970. (Letter)

A 12-month-old patient with congenital nonobstructive nonhemolytic jaundice, treated with phototherapy (about 12 hours each night) since age 4 months, manifested bilirubin levels--in the last 4 months--of 10.6 to 16.4 mg/100 ml. Except for skin and scleral icterus, all developmental milestones were normal for his age. Phototherapy is continuing, since the likelihood of kernicterus at higher bilirubin levels over long periods is unknown. (No refs.) - *B. Berman.*

Washington University School of Medicine
St. Louis, Missouri 63110

2220 YOW, MARTHA DUKES. Ampicillin in the treatment of meningitis due to *Hemophilus influenzae:* An appraisal after 6 years of experience. *Journal of Pediatrics,* 74(5): 848-852, 1969.

An appraisal of 7 major questions concerning the value of ampicillin in treating *H. influenzae* meningitis reveals that all strains of pneumococci and meningococci tested for ampicillin sensitivity have been found sensitive, bacterial resistance has not been serious, the drug effectively penetrates the blood-brain barrier, it is unequívocally effective *in vivo,* the best route for its initial administration is intravenous, average duration of therapy is 10 days to 2 weeks, or 1 week after all infectious signs are gone, and the drug is well tolerated. In essence, ampicillin is the present choice in continuing therapy in *H. influenzae* infection, with indication that the minimal dose be increased to 200 mg/kg/day. (17 refs.) - *B. Berman.*

Baylor University College of Medicine
Houston, Texas 77025

2221 GOLD, A. J.; LIEBERMAN, ELLIN; & WRIGHT, HARRY T., JR. Bacteriologic relapse during ampicillin treatment of *Hemophilus influenzae* meningitis. *Journal of Pediatrics,* 74(5):779-781, 1969.

A 7-month-old Negro girl experienced a bacteriologic relapse while being treated for *Hemophilus influenzae* meningitis with the usually recommended ampicillin dosage. An initial dose of 50 mg/kg was administered intravenously, followed by 150 mg/kg/day, a regimen generally considered effective. By the fifth day, the infant was afebrile, but on the eighth day, fever recurred; cerebrospinal fluid culture yielded *H. influenzae* (type b) sensitive to ampicillin and chloramphenicol. Ampicillin was discontinued and intravenous chloramphenicol (100 mg/kg/day in divided doses every 6 hours for 5 days) was instituted. Chloramphenicol was discontinued on the fourteenth day; the patient was discharged on the sixteenth day and has remained asymptomatic. The case suggests that, in some cases of *H. influenzae* meningitis, optimal ampicillin therapy may be larger than 150 mg/kg/day. (11 refs.) - *B. Berman.*

Children's Hospital of Los Angeles
Los Angeles, California 90027

2222 MUSIC, STANLEY I.; FINE, ERIC M.; & TOGO, YASUSHI. Zoster-like disease in the newborn due to herpes-simplex virus. *New England Journal of Medicine,* 284(1):24-26, 1971.

A 12-day-old Negro girl with a zosteriform eruption due to herpes-simplex virus extends the clinical spectrum for proved neonatal

cases of this infection accompanied by the eruption. Serum was obtained from infant and mother on the infant's twelfth day of life and 15 days later. Serologic tests showed no reaction for the infant at 1:8 against vaccinia, varicella-zoster, and herpes-simplex viruses. The mother's serum showed a 1:32 titer against herpes simplex, a result consistent with an existing or pre-existing infection. It is still not known whether herpes-simplex virus is the common cause of zoster-like disease in neonates. This case demonstrates the need for viral cultures before ascribing cause to a zoster distribution of vesicles in the newborn. (25 refs.) - *B. Berman.*

University of Maryland School of Medicine
Baltimore, Maryland 21201

2223 SHERSHOW, LEE W.; EKERT, HENRY; SWANSON, VIRGINIA L.; WRIGHT, HARRY T., JR.; & GILCHRIST, GERALD S. Intravascular coagulation in generalized herpes simplex infection of the newborn. *Acta Paediatrica Scandinavica,* 58(5):535-539, 1969.

A 5-day-old boy with a disseminated herpes-simplex infection accompanied by a fatal hemorrhagic diathesis presented intravascular coagulation suggested by thrombocytopenia, fibrinogenopenia, and reduced Factor V level. When first seen, the patient was 10% dehydrated and lethargic and had bilateral fine rales in the chest. There were no focal neurologic signs or skin lesions, and routine cultures of cerebrospinal fluid, urine, and blood showed no organisms. Eighteen hours after initiation of heparin therapy following seizures and irreversible hypotension, the patient expired. At autopsy, megakaryocytes in the bone marrow suggested the thrombocytopenia was due to increased peripheral use of platelets; widespread platelet and fibrin deposition in the liver and lungs reflected intravascular and extravascular coagulation. In these cases, coagulation studies are needed to establish rational therapy since anticoagulants (especially heparin) may be indicated. Additional investigations are needed since fatal hemorrhage may complicate neonate herpes-simplex infection. (19 refs.) - *B. Berman.*

Children's Hospital
Los Angeles, California 90027

2224 NELSON, JOHN D.; & WATTS, CLARK C. Calcified subdural effusion following bacterial meningitis. *American Journal of Diseases of Children,* 117(6):730-733, 1969.

The natural history of a patient with subdural collections of fluid associated with bacterial meningitis has provided insight into various treatments. The infant, while convalescing from *Haemophilus influenzae* meningitis, developed spastic hemiparesis cranial suture separations. Cerebrospinal fluid was sterile, but fluorescent antibody staining identified *H. influenzae* (type b) organisms. Administration of penicillin, streptomycin, and sulfadiazine provided relief for major symptoms, but clinical evidence pointed to subdural accumulation over the right cortex, an impression that could not be confirmed because of parental refusal to permit aspiration or surgical treatment. Three years later, examination revealed persistent neurologic deficit and a large calcified mass over the right cerebral cortex. Correct treatment of calcified subdural masses remains uncertain. Although there is evidence that surgery ameliorates hemiplegia, seizures, and headaches, surgical intervention is also debatable. What is without question is that large postmeningitic effusions, if not treated, may calcify as do subdural hematomas. (8 refs.) *B. Berman.*

University of Texas Southwestern Medical School
Dallas, Texas 75235

2225 REMINGTON, JACK S. The present status of the IgM fluorescent antibody technique in the diagnosis of congenital toxoplasmosis. *Journal of Pediatrics,* 75(6, part 2): 1116-1123, discussion, 1123-1124, 1969.

In 11 asymptomatic infants suspected of infection with congenital toxoplasmosis, an indirect, simple, highly specific fluorescent antibody test (applicable to other difficult-to-diagnose congenital conditions) demonstrated immunoglobulin M (IgM) toxoplasma antibodies. Supported by the Sabin-Feldman dye test, this antibody test confirmed toxoplasmosis diagnosis at autopsy or by showing persisting antibodies. Sera from S infants (born of a mother who had acquired toxoplasmosis during pregnancy) on which the IgM test was performed revealed IgM toxoplasma antibodies in measurable concentrations and demonstrated the presence of asymptomatic congenital toxoplasmosis. In each S, IgM fluorescent antibody test was > 1:10, but there is insufficient experience to suggest this larger titer as a minimum for diagnosis. Ready use of this method is complicated by difficulties in obtaining adequate quantities of a fluorescein-tagged antiserum to human IgM. In addition, it is questionable whether IgM yielded by an infected fetus *in utero* is antigenically comparable to that of normal adults. Nevertheless, successful automation of the antibody test now permits screening programs and enhances the confirmed value of this technique

in diagnosing congenital neonate toxoplasmosis. (21 refs.) - *B. Berman.*

Palo Alto Research Foundation
Palo Alto, California 94301

2226 SCOTTI, ANGELO; LOGAN, LESLIE; & CALDWELL, JOSEPH G. Fluorescent antibody test for neonatal congenital syphilis: A progress report. *Journal of Pediatrics,* 75(6, part 2):1129-1133; discussion, 1133-1134, 1969.

In 141 neonate sera tested for reactivity by Venereal Disease Research Laboratory (VDRL) and Treponemal Antibody Absorption (FTA-ABS) tests, an indirect fluorescent immunoglobulin M (IgM) test specific for congenital syphilis in the newborn has effectively distinguished between active and passive reactivity. In 18 cases of neonatal syphilis, the IgM test was reactive, and in all clinically normal Ss, it was nonreactive. Each of the sera was also tested with anti-immunoglobulin G and A conjugates instead of the usual reagent in the FTA-ABS test. All Ss (treated and untreated) were followed to detect later syphilitic manifestations. Thus far, IgM results (when VDRL and FTA-ABS tests are reactive) remain unchallenged in determining activity or passivity of the immune response. The IgM FTA-ABS test, in every encountered case of neonate syphilis, has been consistently positive, and in clearly nonsyphilitic Ss, it was consistently nonreactive. Sensitivity, although not yet determined, appears at least as high, or even higher, than that of the other tests. (5 refs.) - *B. Berman.*

Mayo Clinic
Rochester, Minnesota 55901

2227 DUDGEON, J. ALASTAIR; MARSHALL, WILLIAM C.; & SOOTHILL, JOHN F. Immunological responses to early and late intrauterine virus infections. *Journal of Pediatrics,* 75(6, part 2):1149-1166, 1969.

In 4 groups of Ss (congenital rubella, cytomegalovirus, varicella, miscellaneous) with confirmed or suspected intrauterine infection, virological and immunoglobulin evaluations demonstrated persistence of rubella antibody in congenital rubella patients aged 4 to 16 years and in all but 1 of 21 younger (0-4 years) patients. During the first 6 months of life, most showed increased immunoglobulin M (IgM) levels with a tendency, at 4 to 6 months, to attain normal levels. In congenital cytomegaloviral infection, IgM levels were also elevated but not to the rubella range. Virus was isolated from all Ss, but only a few showed complement-fixing antibody to cytomegalovirus. One 3-month-old infant, exposed to first-trimester maternal varicella, revealed elevated antibodies at the upper normal limit; this S and a fatal case of neonatal varicella showed high IgM levels. No specific evidence of viral infection could be found in 11 patients presenting disease, in the perinatal period, attributed to intrauterine infection, but in 3 of these, raised IgM levels were noted. (24 refs.) - *B. Berman.*

Hospital for Sick Children
London, England

2228 ALFORD, CHARLES A., JR.; FOFT, JOHN W.; BLANKENSHIP, WILLARD J.; CASSADY, GEORGE; & BENTON, W. J., JR. Subclinical central nervous system disease of neonates: A prospective study of infants born with increased levels of IgM. *Journal of Pediatrics,* 75(6, part 2):1167-1178, 1969.

The screening of umbilical-cord sera for raised immunoglobulin M (IgM) levels is a useful procedure in discovering and defining subclinical neonate congenital infection when joined with specific identification techniques. In a 1-year period, venous blood, obtained from the umbilical cords of 2,916 consecutive live births, was checked by radial immunodiffusion for IgM levels. An IgM level above 19.5 mg/100 cc and remaining steady in serial neonatal samples was considered elevated. Neonates with raised values showed infection at a 30-fold or more increased rate, and in 42 elevated cases, systemic or localized infections were detected. More than 1/2 of infected neonates presented persistent cerebrospinal fluid pleocytosis and high protein levels. Central nervous system (CNS) damage was noted in 2 cases with toxoplasma and 2 with cytomegalovirus infections, and additional evidence pointed to subclinical congenital infections with CNS involvement as an important cause of currently unclassified brain damage. (19 refs.) - *B. Berman.*

University of Alabama Medical Center
Birmingham, Alabama 35233

2229 HANSHAW, JAMES B. Congenital cytomegalovirus infection: Laboratory methods of detection. *Journal of Pediatrics,* 75(6, part 2):1179-1184; discussion, 1184-1185, 1969.

Virus isolation--the most sensitive technique available for confirming congenital cytomegalovirus (CMV) infection in neonates--detected infection in 1% of 685 unselected newborn infants. The most effective of the various available serologic procedures (including CMV complement-fixing (CF) and neutralizing antibody tests) is the immunofluorescent test for

CMV macroglobulin, which was able to detect this specific immunoglobulin M in 96% of symptomatic infants. This test (which is significantly less reliable with asymptomatic infants, especially in the immediate postnatal interval) does not correlate with CF as well as does the immunofluorescent test for CMV immunoglobulin G, thus indicating that the CF test primarily measures 7S antibody. (13 refs.) - *B. Berman.*

University of Rochester School of Medicine and Dentistry
Rochester, New York 14620

2230 HUNTLEY, CAROLYN C.; LYERLY, ANNE D.; PATTERSON, MIRIAM V.; & SEVER, JOHN L. Immunoglobulins in infants of rubella-exposed mothers. *Journal of Pediatrics,* 75(6,part 2): 1186-1193, 1969.

Large doses of γ-globulin, containing most immunoglobulin G (IgG) antigenic determinants and administered to hundreds of mothers exposed to rubella in the first trimester of pregnancy during the 1964 North Carolina epidemic, depressed noninfected infants' own IgG levels for up to 1 year of age, with no clinical problems. Mothers and infants were divided into groups who: received IgG after exposure, but did not have clinically detectable rubella; received IgG and showed no overt rubella; and received no IgG and did develop overt rubella. Single immunodiffusion method in gel tubes determined IgG levels. Intrauterine rubella, defined by antibody persistence in the infected infant after age 5 months, induced (up to age 2 yrs) higher serum IgG and immunoglobulin M concentrations than in noninfected patients. (7 refs.) - *B. Berman.*

Bowman-Grey School of Medicine
Winston-Salem, North Carolina 27103

2231 NAHMIAS, ANDRE J.; DOWDLE, WALTER R.; JOSEY, WILLIAM E.; NAIB, ZUHER M.; PAINTER, LAVONNE M.; & LUCE, CAROLYN. Newborn infection with *Herpesvirus hominis* types 1 and 2. *Journal of Pediatrics,* 75(6,part 2): 1194-1202; discussion, 1202-1203, 1969.

In 28 cases of neonatal herpetic infection with *Herpesvirus hominis* (HVH), virological and serological typing of specimens from newborns and/or their mothers plus clinical data provided by the mothers suggest the major source of such infection is the mother's infected genital tract. Twenty-five cases showed type 2 HVH infection; 3 showed type 1. In several infants, immunoglobulin M (IgM) serum levels were elevated and these apparently correlated better with HVH antibodies detected by indirect immunofluorescence than by neutralization. In the typing studies, virus isolates were passed in rabbit-kidney tissue cultures, and sera were inactivated at 36° C for 30 minutes; both were submitted to a microneutralization test. IgM and immunoglobulin G and A quantities were determined by Alford's method. The type 2 cases manifested skin vesicles (6 Ss), chorioretinitis and keratitis (1 S), encephalitis (7 Ss), generalized disease with or without encephalitis (9 Ss). Apparently transplacental type 1 or 2 antibodies do not prevent neonatal type 2 herpetic disease. (20 refs.) - *B. Berman.*

Emory University School of Medicine
Atlanta, Georgia 30303

2232 McCRACKEN, GEORGE H., JR.; HARDY, JANET B.; CHEN, T.C.; & SEVER, JOHN L. Evaluation of a radial diffusion plate method for determining serum immunoglobulin levels in normal and congenitally infected infants. *Journal of Pediatrics,* 75(6,part 2):1204-1209; discussion, 1209-1210, 1969.

A radial-diffusion plate method, which uses commercially available antiserum-agar plates, was applied to 2,600 cord sera from normal and congenitally infected infants and proved simple and satisfactory in quantitating immunoglobulins but only when safeguards were applied to minimize the comparatively large coefficient of variation resulting when testing sera with low immunoglobulin M (IgM) levels. Diagnosis of congenital rubella was made by viral isolation and/or significant antibody titers on 123 single-born infants with congenital rubella syndrome. Cord sera were available from 88 of these Ss, and follow-up serum specimens from 97. In 18% of 88 rubella-infected Ss (particularly in severe cases) cord IgM values were raised. In about 1/2 of the rubella Ss, 182 sera collected during the first 6 months of life showed elevated immunoglobulin values. There is indication that clinical confirmation of intrauterine infection may be aided by serum immunoglobulin determinations in infants. (9 refs.) *B. Berman.*

University of Texas Southwestern Medical School
Dallas, Texas 75235

2233 HARDY, JANET B.; McCRACKEN, GEORGE H., JR.; MELLITS, E. DAVID; GILKESON, MARY R.; & SEVER, JOHN L. Serum immunoglobulin levels in newborn infants: III. Some preliminary observations from a survey of cord blood levels in 2,600 infants. *Journal of Pediatrics,* 75(6,part 2):1211-1223, 1969.

Immunoglobulin G (IgG) and immunoglobulin M (IgM) umbilical-cord serum levels for 2,600

infants showed no significant IgG difference for sex but significantly higher mean levels in Negro Ss than in Caucasian for normal and non-normal noninfected groups. The radial-diffusion plate technique was applied to serum samples (collected bimonthly during pregnancy, at delivery, and postpartum) for separate determination of immunoglobulin level. In general, birth weight and IgG levels were associated (small infants showed lower levels) and the infected and non-normal noninfected groups showed lower IgG levels and birth weights than did normals. Twice as many Caucasians as Negroes showed IgM levels above 30 mg%. Association of high IgM levels and congenital infection was confirmed, and very low levels were definitely related to congenital malformations, neurological abnormalities, and perinatal mortality. Cord IgM levels at 1 year showed a marked rise in abnormalities at each end of the IgM distribution scale. (8 refs.) - *B. Berman.*

Johns Hopkins Hospital
Baltimore, Maryland 21205

2234 SEVER, JOHN L.; HARDY, JANET B.; KORONES, SHELDON B.; GILKESON, MARY R.; CORRIDON, LINDA; LEY, ANITA C.; TZAN, NANCY; & YARNICK, DOROTHY. Cord immunoglobulins in a middle class Caucasian population. *Journal of Pediatrics,* 75(6,part 2):1224-1230, 1969.

Readings of cord immunoglobulin M (IgM) levels in 2,773 patients (97% Caucasian) demonstrated very low incidence (0.8%) of elevated levels and a correlation between low IgM levels and low birth weight, suggesting infrequent occurrence of congenital infections and factors causing fetal and neonatal damage in a predominantly middle and upper socioeconomic group. Clinical and laboratory data from each pregnancy were gathered at 14 collaborating institutions throughout the country, and evaluations (including neurologic examinations) were made between 36 and 60 hours after birth, then periodically up to age 4. The relation between high cord IgM and a spectrum of abnormalities suggests a need for more studies of large groups, especially those of low socioeconomic status, to reveal previously undetected fetal and neonatal damage. (22 refs.) - *B. Berman.*

National Institute of Neurological Diseases and Stroke
Bethesda, Maryland 20014

2235 SOOTHILL, JOHN F.; CHANDRA, R. K.; & DUDGEON, J. A. Some relationships between serum immunoglobulin deficiencies and infection *in utero* in the early weeks of life. *Journal of Pediatrics,* 75(6,part 2):1257-1260, 1969.

Elevated serum immunoglobulin M (IgM) and immunoglobulin A (IgA) in the first days of life may reflect virally induced abnormal intrauterine antigen stimulus that may cause abnormalities in immunity maturation. Similar effects may result from immunoglobulin G deficiency common in congenital rubella. Cellular immunity deficiencies are usually noted in unusual susceptibility to viral infection, including progressive necrotic vaccinia. However, marked IgM and IgA deficiencies were noted in disseminated nonprogressive vaccinia without evidence of cellular immunity deficiency, reflecting, possibly, an apparent special IgM role in protection against meningitis. The occurrence of immunoglobulin deficiencies in symptomless relatives of patients with severe deficiencies provides an important, although nonspecific, epidemiologic procedure--the estimation of immunoglobulins in relatives of patients with leukemia and other diseases. (16 refs.) - *B. Berman.*

University of London
London W.C. 1, England

2236 KORONES, SHELDON B.; ROANE, JOURDAN A.; GILKESON, MARY R.; LAFFERTY, WALTER; & SEVER, JOHN L. Neonatal IgM response to acute infection. *Journal of Pediatrics,* 75(6,part 2):1261-1270, 1969.

Clinical observations made prospectively on 567 Negro neonates to determine the relation of high immunoglobulin M (IgM) levels (2,890 determinations) and acute infections demonstrated only confirmatory diagnostic value in IgM screening for acute infections among high-risk infants. Umbilical-cord blood was collected at delivery, capillary blood was taken by heel prick twice weekly, and serum was separated soon after collection, then stored frozen. IgM assays were done by radial-plate diffusion; observations and diagnostic impressions were recorded without awareness of IgM results. With only a few exceptions, IgM elevations occurred several days following the appearance of physical signs, and through careful clinical attention, most infections were detected before the elevations became known. Results point to clinical research value in neonatal IgM evaluations, exemplified by a diagnosis of 9 infants with unsuspected nonbacterial conjunctivitis. (10 refs.) - *B. Berman.*

Gailor Memorial Hospital
Memphis, Tennessee 38103

2237 MILLER, MICHAEL J.; SUNSHINE, PHILIP J.; & REMINGTON, JACK S. Quantitation of cord serum IgM and IgA as a screening procedure to detect congenital infection: Results in 5,006 infants. *Journal of Pediatrics*, 75(6,part 2):1287-1291), 1969.

Evaluations of cord sera from 5,006 infants revealed that immunoglobulin M (IgM) and immunoglobulin A (IgA) determinations provide useful screening in detecting inapparent congenital infections in infants. Sera, after centrifugation, were separated and stored at 4° C; within 48 hours, they were quantitated by Hyland's immunodiffusion procedure. In 135 sera with IgM readings higher than 20 mg%, 60% were a result of placental leak, 27% were due to abnormal IgM quantities *in utero*, and 13% were questionable. When the diagnostic value of IgM evaluations is minimized, certain premature and full-time Ss showed normal levels despite infections detected postnatally, and of 37 infants with abnormal IgM, 27 proved free of infection. Failure to detect elevated IgM in infected infants may be caused by inability to respond appropriately to antigenic stimulation or by occurrence of infection before a measurable immunoglobulin response has taken place. (14 refs.) - *B. Berman.*

Palo Alto Medical Research Foundation
Palo Alto, California 94301

2238 Rubella and immunologic response. *Pediatrics*, 43(3):322-323, 1969. (Editorial)

Attention has focused on rubella for 2 reasons: persistence of virus excretion long after birth despite continuing synthesis of antibody, and the association of the virus with various immunologic disorders. Thus, rubella virus suppresses response to phytohemagglutinin by cultured normal lymphocytes. In infants, there is a temporal connection between active infection and suppression of humoral antibody response without immunoglobulin abnormalities and a suppression of delayed hypersensitivity. More prolonged excretion of virus by male infants may be due to estrogen absence, and there is some evidence of relationship between males, susceptibility to rubella-induced immunologic unresponsiveness, and persistent viral excretion. Needing further exploration are problems of immunologic response, cancer, and sex differences in disease. (10 refs.) - *B. Berman.*

2239 HUSKISSON, E. C.; & HART, F. DUDLEY. Fulminating meningococcal septicaemia presenting with subarachnoid haemorrhage. *British Medical Journal*, 2(5651):231-232, 1969.

A 20-year-old Irish woman with fulminating meningococcal septicemia--an acute, uncommon form accompanied by shock and a generalized purpuric rash--presented an unusual subarachnoid hemorrhage that interfered with diagnosis and treatment. Presenting also customary clinical features (sudden collapse with hypotension, peripheral circulatory failure, and hemorrhagic rash) plus rare necrotic skin lesions, the S offered 2 possible explanations of bleeding: involvement of intracranial vessels in the generalized infective arteritis and deficiency of clotting factors following disseminated intravascular coagulation. The latter suggested heparin therapy, but this has not been altogether successful since anticoagulants do not influence endotoxic shock. General measures to restore blood volume and maintain circulation, replace clotting factors, and elevate renal function are generally required. (21 refs.) - *B. Berman.*

Westminster Hospital,
London, England

2240 Aftermath of a rubella epidemic. *Medical World News*, 10(8):20, 1969.

Inadequate and belated reaction by school and legislative officials to the 1963-1964 rubella epidemic has resulted in a serious overcrowding of educational facilities for the rubella-damaged child whose multiple defects may include deafness, impaired vision, and psychological, neurological, and circulatory problems. Education of the individual requires highly trained personnel, needs improved methodology, and is costly (ranging from $9,000-$12,000/child/year). Although the total cost of educating the estimated 20,000 to 30,000 handicapped children now nearing school age is estimated to be about $2.8 billion, Congress did not appropriate funds for this purpose until last summer and then made only 2 million dollars available under the Handicapped Children's Early Education Assistance Act and under Title VI of the Elementary and Secondary Education Act. Lack of adequate funds to provide this special education can eventually result in welfare and custodial costs of up to 3 times those estimated for their education. (No ref.) - *M. S. Fish.*

2241 DUDGEON, J. A.; MARSHALL, W. C.; PECKHAM, CATHERINE S.; & HAWKINS, G. T. Clinical and laboratory studies with rubella vaccines in adults. *British Medical Journal*, 1(5639):271-276, 1969.

Fifty-five non-immune (seronegative) and 87 immune (seropositive) adult volunteers from

closed communities (convents and monasteries) were vaccinated with 3 live attenuated rubella vaccines (Cendehill, duck embryo, and human diploid). A third group of 26 seronegative Ss served as the control population. Frequency and duration of virus excretion up to the twenty-ninth day after vaccination were monitored by inoculation of 3 separate cell cultures (vervet monkey kidney, RK 13, and primary patas monkey) with aliquots of material taken from nose and throat swabs which had been collected into virus transport medium. Immune response to the vaccine was determined by hemagglutination-inhibition (HI), neutralization, and complement-fixation tests. Clinical reactions were mild but were more frequent in the seronegative vaccinated group. Two volunteers vaccinated with Cendehill vaccine developed allergic-type rashes. With the exception of 1 S who was vaccinated with the duck embryo preparation and 1 receiving the diploid vaccine, all seronegative Ss who were vaccinated developed immune responses, although the average level of antibodies was somewhat lower than that resulting from natural infection. Twelve of the seropositive group showed 4- to 8- fold increase in HI antibodies. Virus excretion among the seronegative vaccinated group was considerably less than that found in natural infections, and no evidence of transmission of infection was observed. (20 refs.) - *M. S. Fish.*

Hospital for Sick Children
London W. C. 1, England

2242 Early detection of lead toxicity. *Lancet,* 1(7649):704-705, 1970. (Editorial)

A number of sensitive indicators of lead absorption make possible presymptomatic diagnosis and the establishment of norms for dangerous levels of exposure. The most commonly used biochemical indices of occupational exposure to lead are the excretion of coproporphyrin and 5-aminolevulinic acid (ALA) in the urine. Urban exposure can be measured by the even more sensitive erythrocyte ALA dehydratase test. Commercial marketing of nonleaded gasolines presages a welcome reduction of atmospheric lead. (10 refs.) - *S. Glinsky.*

2243 NAIL, RICHARD L. Meningococcal meningitis: Repeat case. *New England Journal of Medicine,* 282(21):1211, 1970. (Letter)

An 18-year-old Marine recruit suffered 2 attacks of meningococcal meningitis. During the first attack, the spinal fluid yielded Type C, sulfonamide-resistant meningococci, while during the second, it yielded the Bochard serotype (E,Y) of sulfonamide-resistant meningococci. The clinical course of both attacks was unremarkable. Serology after the second attack suggested an anamnestic reaction. The results suggest that future repeat cases be examined regarding serotype, acute-phase, and convalescent-phase serology, particularly among high-incidence military trainees. (1 ref.) - *S. Glinsky.*

Naval Preventive Medicine Unit No. 5
San Diego, California

2244 FRIEDMAN, ARNOLD B.; ABELLERA, R. MARIO; LIDSKY, ISADORE; & LUBERT, MORTIMER. Perforation of the colon after exchange transfusion in the newborn. *New England Journal of Medicine,* 282(14):796-797, 1970.

A first case in American literature of perforation of the colon after exchange transfusion in the newborn is discussed. Sixteen hours after transfusion in the umbilical vein with a catheter the patient vomited bile-stained mucus and exhibited distention of the abdomen. Upon diagnosis as necrotizing enterocolitis, a right hemicolectomy was performed. Perforation of the gastrointestinal tract after exchange transfusion has been recognized as a distinct clinical entity. Symptoms include abdominal distention, passage of blood by rectum, vomiting, lethargy, irritability, poor feeding, and pneumoperitoneum. The position of the umbilical venous catheter may be crucial, suggesting the use of radiopaque catheters under fluoroscopic control during transfusion. If the catheter is in the portal system, retrograde microembolism or obstructive hemodynamic changes may be produced, resulting in hemorrhagic infarction. (3 refs.) - *S. Glinsky.*

Mt. Sinai Hospital of Cleveland
Cleveland, Ohio 44106

2245 ELLIS, M. IVONNA; COXON, ALAN; & NOBLE, CYRIL. Intrauterine transfusion of twins. *British Medical Journal,* 1(5696):609, 1970.

A successful case of intrauterine transfusion of twins who were liveborn and survived is discussed. The mother of the twins was selected for intrauterine injection due to a high and rising bilirubin level in the liquor amnii. Between 25 and 32 weeks of gestation, each twin was injected 3 times with group-O, rhesus-negative packed cells. Normal vertex deliveries of the twins occurred at 32 weeks, and they were discharged live and well. Successful puncture of the peritoneal cavity depends mainly on accurate palpitation of

the fetus. The placing of a flat x-ray picture over the abdomen is of little use in a twin pregnancy. Intra-amniotic dye aided in distinguishing the fetuses at first transfusion. Later identification was facilitated by bloodstaining the amniotic fluid with donor blood. Palpitation became easier with advancing pregnancy. (4 refs.) - *S. Glinsky.*

No address

2246 Subacute sclerosing panencephalitis. *Canadian Medical Association Journal,* 103(11):1192-1193, 1970. (Editorial)

Recent studies have advanced the understanding of subacute sclerosing panencephalitis (SSPE). Factors associating this disease with the measles virus include clarification of the ultrastructure of the inclusion bodies, discovery of an antigen reacting specifically with immunofluorescent measles antibodies, high levels of measles virus antibody in the sera as opposed to lower levels in the spinal fluid, and the isolation of measles virus (or a virus closely resembling it) from brain biopsy specimens. Attempts to treat the disease with antiviral agents have been inconclusive. It is not clear that SSPE is an infection with "slow" or latent measles virus. (45 refs.) *S. Glinsky.*

2247 Complicated measles after killed vaccine. *Canadian Medical Association Journal,* 103(7):766-767, 1970. (Editorial)

A solution to the incidence of severe atypical measles in recipients of killed measles vaccine during peaks of measles prevalence is discussed. Successful prophylaxis against clinical measles was achieved through injection of the live Edmonston measles vaccine. The resulting high incidence of rash and temperature was countered by the Schwarz further attenuated vaccine, simultaneous administration of pooled human γ-globulin and sequential administration of 2 doses of killed vaccine followed by 1 dose of live vaccine. Immunological studies of severe local reactions indicated alum-precipitated vaccine as the cause. The results suggested the use of live attenuated measles vaccine exclusively between patients' first and second birthdays and the avoidance of inactivated and alum-precipitated vaccine. (18 refs.) - *S. Glinsky.*

2248 STARR, JOHN G. Cytomegalovirus infection in pregnancy. *New England Journal of Medicine,* 282(1):50-51, 1970. (Letter)

An attempt was made to identify clinical evidence of acquired cytomegalovirus (CMV) infection in 32 pregnant women who had given birth to congenitally infected infants during an 18-month period. The virus was cultured from all infants and recovered from the maternal urine in 60% of those cultured. A match control group consisted of an equal number of mothers bearing infants weighing within 400 gm of the preceding infected infant. Examination of the records of these 64 mothers for evidence of various diseases or illnesses showed no striking difference. Papanicolaou examinations of cervical secretions of 28 infected and 28 control pregnancies revealed no intranuclear inclusions nor were any patients transfused. These data indicate that most maternal CMV infections are not clinically apparent. (9 refs.) - *S. Glinsky.*

Cleveland Metropolitan General Hospital
Cleveland, Ohio 44109

2249 KETTYLS, G. D.; DUNN, H. G.; DOMBSKY, NATALIA; TURNBULL, I. M. Subacute sclerosing panencephalitis: Isolation of a measles-like virus in tissue culture of brain biopsy. *Canadian Medical Association Journal,* 103(11):1183-1184, 1970.

For the first time in Canada, a measles-like agent was isolated from the brain of a child with subacute sclerosing panencephalitis (SSPE) by *in vitro* propagation of the patient's brain cells. The 10-year-old female patient exhibited deterioration of mental activities, inability to sit or stand, and eventually dementia with accompanying semicomatose state. Subsequent to a brain biopsy, histological studies revealed findings consistent with SSPE. Trypsinization of brain cultures was carried out, and within 4 days areas of syncytial and giant cell formation were visible. These areas underwent lysis and development of normal cells, but cytopathogenic changes reappeared within 2-4 days upon trypsinization and subculture. Subculture of HeLa and BS-C-1 were control cultures. The presence of a measles-like virus was demonstrated, although it is uncertain whether such virus has any unusual characteristics or acts in conjunction with other pathogenic agents. (10 refs.) - *S. Glinsky.*

Provincial Laboratories,
Vancouver 9, British Columbia, Canada

2250 McLEAN, D. M.; KETTYLS, G. D. M.; HINGSTON, J.; MOORE, P. S.; PARIS, R. P.; & RIGG, J. M. Atypical measles following immunization with killed measles vaccine. *Canadian Medical Association Journal,* 103(7):743-744, 1970.

In 5 cases of atypical measles following immunization with killed vaccine, paired sera

from each patient were examined simultaneously for measles content by hemagglutination inhibition and complement fixation tests. All Ss had received at least 1 injection of killed vaccine. It is recommended that live Schwarz vaccine be used and that alum-precipitated vaccines be discontinued. (10 refs.) - *S. Glinsky.*

University of British Columbia,
Vancouver 8, British Columbia, Canada

2251 WHITEHOUSE, W. L. Rhesus isoimmunization and therapeutic abortion. *British Medical Journal,* 2(5659):759-760, 1969.

A woman who developed Rhesus incompatibility during her first term pregnancy had previously undergone a therapeutic abortion and this appeared to be the genesis of isoimmunization. Such sensitization must be considered at the time of therapeutic abortion, and brief hospitalizations are to be discouraged. Appropriate blood typing, Kleihauer testing, and appropriate anti-D γ-globulin treatment should be a routine part of therapeutic termination of pregnancy. (1 ref.) - *E. L. Rowan.*

Westminster Medical School
London S. W. 1, England

2252 Rhesus sensitization and abortion. *British Medical Journal,* 4(5675):61, 1969. (Editorial)

Rhesus sensitization is usually related to transplacental hemorrhage during placental separation. The danger of such a hemorrhage associated with early abortions is likely to be much less than that associated with a full-term delivery. The risk of primary sensitization even after therapeutic abortion is probably less than 1%. In view of the current national (British) shortage of Rh-immunoglobulin, there is no indication to give Rh-immunoglobulin to Rh-negative women for the very small risk entailed in therapeutic and other forms of abortion. (12 refs.) - *J. C. Moody.*

2253 NORA, AUDREY H.; NORA, JAMES J.; & FERNBACH, DONALD J. Dermatoglyphics and leukaemia. *Lancet,* 2(7626):905-906, 1969. (Letter)

Fifty-six children with acute leukemia were compared with 2 non-leukemic groups (first-degree relatives and unrelated individuals). Analysis confirmed that there were no significant differences between the 3 groups in the frequency of individuals with 1 or more abnormal palmar flexion creases (Simian or Sydney lines). Wile dermatoglyphic analysis may provide useful information about the etiology of leukemia, the study data are not consistent with the Menser and Purvis-Smith observation that there are abnormal palmar creases in leukemic children. (1 ref.) - *C. L. Pranitch.*

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Houston, Texas 77025

2254 CHISHOLM, JULIAN J. Lead poisoning. *Scientific American,* 224(2):15-23, 1971.

Lead poisoning has become a problem of major proportions requiring much research and active, immediate preventive measures. Major areas of concern include the need to know whether current lead absorption levels in the general population constitute a subtle health risk and the need to control lead poisoning and its consequences in special subgroups subject to "plumbism." Lead poisoning, particularly among deprived children in ghettoes, leads to brain damage, MR, and behavior problems. Metabolic disturbance is best understood at present in blood chemistry, but must be investigated in kidney dysfunction and in the central nervous system. The most pressing need is to eliminate preventable lead poisoning in children with pica. (19 refs.) - *S. Glinsky.*

No address.

2255 CANADIAN PEDIATRIC SOCIETY. Recommended hospital practices relating to congenital rubella syndrome and rubella virus excretion. *Canadian Medical Association Journal,* 102(7):750-755, 1970.

Recommendations are presented for the prevention of rubella cross-infection leading possibly to embryopathy in the progeny of hospital personnel and other contacts. Development of rubella in the first trimester may have widespread effects upon the fetus and must be correctly diagnosed. Excretion of live rubella virus by the infant acutely enhances communicability, and only hospital personnel with an established rubella immunity should handle newborn infants. Affected infants must be afforded isolation precautions and special care facilities. Known or suspected virus shedders must be labeled and strictest cleanliness precedures observed. Investigation of a suspected congenital rubella syndrome should include maternal history and physical examination together with laboratory investigations of both mother and child. Extreme caution must surround hospital dis-

charge and readmission procedures. (No refs.) - *S. Glinsky.*

No address.

2256 Prevention of haemolytic disease of the newborn by the administration of anti-D to the mother. *German Medical Monthly,* 14(2): 58-62, 1969.

A cooperative study group investigated anti-D prophylaxis in Rh-negative women (3,450) after the birth of an Rh-positive child. Results indicated that 22.8% (787) had more than 0.01% fetal red cells, 28.2% (972) had less than 0.01%, and 49% (1,691) had no HbF cells. Four to 6 months after delivery and after receiving prophylactic anti-D, 487 women were re-examined; only 2 had Rh-antibodies. Fifty Rh-positive children born to Rh-negative mothers after they received anti-D serum were all free of Rh-hemolytic disease of the newborn, and no antibodies were found in the mothers. The results confirm the efficacy of anti-D prophylaxis in Rh-negative women after the birth of an Rh-positive child. (14 refs.) - *S. Glinsky.*

Universitats-Frauenklinik
78 Freiburg, Germany

2257 NEJEDLA, ZDENKA. The development of immunological factors in infants with hyperbilirubinemia. *Pediatrics, 45(1):* 101-104, 1970.

Twelve infants who had a high level of bilirubin (> 15 mg/100 ml) due to Rh or ABO incombatibility and did not receive exchange transfusion were followed for 1 year after birth. All were immunized against diphtheria, tetanus, and pertussis, and the antibodies against these diseases were followed as well as against 2 pathogenic strains of *E. coli* (026 & 055) and 1 non-pathogenic strain (079). The control group was 25 healthy children and 40 children who had received exchange transfusions. The infants with hyperbilirubinemia had significantly lower (< 0.01) antibody levels against diphtheria and tetanus. No significant differences were noted in antibodies against *E. coli* 026, 055, & 079. The results indicate that high levels of circulating bilirubin during the neonatal period are a causative factor in the significant depression of antibody levels against diphtheria, tetanus, and pertussis in infants with hyperbilirubinemia. (4 refs.) - *S. Glinsky.*

Institute for the Care of Mother and Child
Prague-Podoli, Czechoslovakia

2258 GLICK, THOMAS H.; DITCHEK, NORMAN T.; SALITSKY, SHERWOOD; & FREIMUTH, ERICH J. Acute encephalopathy and hepatic dysfunction: Associated with chickenpox in siblings. *American Journal of Diseases of Children,* 119(1):68-71, 1970.

Two of 3 siblings with clinical chickenpox exhibited acute encephalopathy with hepatic abnormalities. To date pathologic evidence linking these conditions has been meager. The cases were a 3-year-old white girl, who died 5 days after chickenpox lesions were noted, and the girl's 6-year-old brother, who recovered 14 days afterward. The features of both cases conformed to Reye's syndrome. Neither parents nor children had recent exposure to communicable diseases, and the children were initially in good health. All 3 children received trimeprazine in therapeutic dosage for pruritus. The cases add evidence that varicella-zoster virus is involved in the etiology of Reye's syndrome and that the relationship between etiologic agent and host response is undefined. (17 refs.) - *S. Glinsky.*

National Communicable Disease Center
Atlanta, Georgia 30333

2259 TIMMONS, G. DEAN; & JOHNSON, KENNETH P. Aqueductal stenosis and hydrocephalus after mumps encephalitis. *New England Journal of Medicine,* 283(27):1505-1507, 1970.

A 5-year-old boy developed aqueductal stenosis and hydrocephalus 27 months after mumps encephalitis. The phenomenon, previously demonstrated with rats, now appears possible in humans. The patient did not exhibit signs of hydrocephalus or neurologic dysfunction until 22 months after encephalitis, when hydrocephalus was discovered. This indicates that aqueductal stenosis and hydrocephalus may develop as delayed sequelae of severe mumps-virus infections of the ependyma. Also acute viral infections of the central nervous system may begin pathologic processes containing no evidence of the prior infection. (5 refs.) - *S. Glinsky.*

Cleveland Metropolitan General Hospital
Cleveland, Ohio 44109

2260 RAY, C. GEORGE; & DAVIS, STARKEY D. Leucocyte interferon production in immunological deficiency diseases. *Lancet,* 1(7641):312, 1970. (Letter)

The possible causative effect of a deficiency of interferon production upon increased susceptibility to viral infections was investi-

gated in 11 patients with immunological deficiency diseases (4 with ataxia-telangiectasia) and 15 control Ss. None of the Ss had an infectious disease at least 2 weeks prior to the study. Titers were calculated for the interferon from peripheral-blood leukocytes and expressed in units as the reciprocal of the calculated dilution which would protect half the cultures. The results indicated that patients with anti-body deficiencies had titers of 6 or greater. Only 1 patient, a child with ataxia telangiectasia, had consistently low titers of interferon. Thus interferon production by leukocytes seems to be within the normal range in the anti-body deficiency syndromes, but no conclusions are possible regarding patients with a deficiency of cellular immunity. (4 refs.) - *S. Glinsky.*

University of Washington School of Medicine
Seattle, Washington 98105

2261 CASTEELS-VAN DAELE, M.; JAEKEN, J.; VAN DER SCHUEREN, P.; ZIMMERMAN, A.; & VAN DEN BON, P. Dystonic reactions in children caused by metoclopramide. *Archives of Disease in Childhood,* 45(239):130-133, 1970.

In 5 children presenting disturbing dystonic reactions (neck pain, torticollis, retrocollis, oculogyric crisis, trismus) and hospitalized with varying diagnoses of encephalitis, meningitis, and tetanus, all symptoms disappeared with discontinuation of metoclopramide which had been administered in normal dosage. Suspicion of toxicity to the drug (which appears to affect preferentially neck and eye muscles) arose after Ss showed extrapyramidal symptoms known to occur after phenothiazines. In no case, did any S lose consciousness. Early recognition and prompt diagnosis of these reactions are important. The drug must not be given indiscriminately to children, and all practitioners should be familiar with its effects. (13 refs.) - *B. Berman.*

Academisch Ziekenhuis
St.-Rafael, Leuven, Belgium

2262 LEVIN, G. E., McMULLIN, G. P.; & MOBARAK, A. N. Controlled trial of phenobarbitone in neonatal jaundice. *Archives of Disease in Children,* 45(239): 93-96, 1970.

Twenty-four infants with neonatal non-obstructive jaundice, treated in a single-blind controlled 3-day trial with phenobarbitone, demonstrated no improvement as a result of the treatment. The drug (5 mg/kg/day) was administered to Ss in linctus simplex; only linctus simplex was given to the 27 controls. Blood for serum bilirubin estimation was taken by heel-prick before treatment. Maximum recorded serum bilirubin levels for the 2 groups showed no significant difference, although a small significantly higher level for controls occurred 24 hours after start of treatment. There is a theoretical possibility that larger phenobarbitone doses might lower serum bilirubin levels more rapidly, but this would probably compete with bilirubin for binding to serum albumin. A larger trial with somewhat larger doses may be justified with small premature babies and infants of diabetic mothers. (17 refs.) - *B. Berman.*

Royal Free Hospital
London, England

2263 FORREST, JILL M.; & MENSER, MARGARET A. Congenital rubella in schoolchildren and adolescents. *Archives of Disease in Childhood,* 45(239):63-69, 1970.

Forty-one schoolchildren and adolescents (16 boys, 25 girls) with congenital rubella presented multiple defects, but there was no correlation between the time during pregnancy when maternal rubella was reported and the severity of the fetal defects. Congenital rubella was diagnosed if rubella chorioretinopathy, clinical history of rubella during pregnancy, and any of the "classical" defects (deafness, ocular lesions, cardiovascular abnormalities, or central nervous system defects) were present. Noteworthy was the number of Ss (88%) with multiple defects, attributable, undoubtedly, to the widespread predilection of rubella virus for the fetus. In contrast to other studies, the traditional concept of cataract and heart involvement following maternal rubella in the first 8 weeks was not present, and only 2 Ss presented neonatal purpura. No definite "rubella personality" could be delineated. (17 refs.) - *B. Berman.*

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Australia

2264 NIELSEN, NIELS CHR. The influence of exchange transfusion upon coagulation and fibrinolysis in newborn infants with erythroblastosis. *Acta Obstetricia et Gynecologica Scandinavica,* 49(1):71-76, 1970.

A study of coagulation and fibrinolysis factors in blood samples drawn from erythroblastotic newborns at birth, and both before and after exchange-transfusion (ET), revealed: simultaneous decreases in prothrombin-procon-

vertin (PP) and factor V and in fibrinolytic activity in the 5 hours between birth and the ET; and a strong drop in platelet count, increased PP, prolonged Quick time, slight decline in fibrinogen, and marked rise in plasminogen in the interval before and after ET. All changes in coagulation and fibrinolysis were due to the composition of the ET donor blood (395 ml whole and 120 ml packed blood); the older packed blood (averaging 2.8 days) had fewer platelets and coagulation factors than ordinary donor blood (24 hours). (25 refs.) - *B. Berman.*

University Maternity Hospital
Arhus, Denmark

2265 GAJDUSEK, D. C.; SORENSON, E. R.; & MEYER, JUDITH. A comprehensive cinema record of disappearing kuru. *Brain*, 93(1): 65-76, 1970.

A cinematic record of kuru (a neurological disease unique to New Guinea and the first subacute CNS degenerative disorder in man to be transmitted to an animal host) presents 204 patients in all disease stages, documents spontaneous motor behavior and neurological examinations that depict most clinical features, and reflects the disease's declining incidence. Entitled *Kuru--A Comprehensive Assembly of all Known Cinema on the Clinical Aspects of Kuru,* and divided into 17 reels (17,397 feet in length) representing work of different filmers, the film has been assembled as a research document and is available to individual investigators. Highlights depict successful introduction of a kuru-like syndrome in chimpanzees by intracerebral or peripheral inoculation of brain-tissue suspensions from kuru victims, and subsequent transmittal of the disease to spider monkeys, using infected chimpanzee brain suspension. These virological data explain epidemiological changes in the disease (figures through 1968 show continuing decline in kuru deaths). (13 refs.) - *B. Berman.*

National Institutes of Health
Bethesda, Maryland 20014

2266 NIELSEN, NIELS CHR. Coagulation and fibrinolysis in rhesus-immunized mothers and their erythroblastotic newborn infants. *Acta Obstetricia et Gynecologica Scandinavica,* 49(1):61-69, 1970.

A study of the effects of Rhesus-D immunization on coagulation and fibrinolysis in mothers and their erythroblastotic infants revealed no influence on mothers (even in massive immunizations) but a number of changes in offspring. Infants revealed platelet counts decreasing with the severity of erythroblastosis, with concomitant increase in plasma clot-inducing components and decrease in prothrombin-proconvertin (PP) content and factor V; they showed no change in fibrinogen, except for a reduction in fibrinolytic activity in newborns. Immunization of mothers tended to produce premature deliveries, probably contributing to PP reduction (174%) compared with normal mothers (227%). Platelet count reduction in the immunized infants may reflect platelet and erythrocyte incompatibilities either in the form of definite platelet antibodies or as a consequence of Rhesus-D antibody. The plasma's enhanced clot-inducing activity may affect the low platelet counts in severe erythroblastosis while the mild prematurity in erythroblastotic infants may affect the PP and factor V changes. (15 refs.) - *B. Berman.*

University Maternity Hospital
Arhus, Denmark

2267 Rubella vaccines. *Lancet,* 1(7638): 127-128, 1970. (Editorial)

Development of rubella vaccines (they are now licensed and in wide use) required examination of choice of cell substrate, viral-strain safety, and vaccine efficacy. Although monkey-kidney and chicken-embryo cells have proved unacceptable as substrates, duck-embryo, dog-kidney, rabbit-kidney, and human-diploid cell lines have been widely used. The latter, typified by WI-38, which permits use of a controlled cell-seed system, appears ideal for virus vaccines. Tests of vaccine safety include ability to spread or cause reinfection, severity of clinical signs following vaccination, and possibility of fetal damage. Live vaccines have been effective in yielding antibodies that prevent the clinical disease; efficacy of killed vaccines remains undemonstrated (allergic complications require caution). A firm vaccination policy is required; it is imperative to protect women by reducing the pool of natural infection. (4 refs.) - *B. Berman.*

2268 HUGHES-DAVIES, T. H. Can E. B. virus affect the fetus? *Lancet,* 1(7638): 145, 1970. (Letter)

An Epstein Barr (EB) virus fluorescent-antibody test on a 10-month-old girl was positive at 1/32, and justified an EB test for virus in infants with unexplained choroiditis, retardation, and convulsions. At 5 months, the child (gestation and birth were normal) began right focal convulsions, then salaam attacks, which were controlled by tetracosactrin, primidone, and nitrazepam. Although skull

X-ray and cerebrospinal fluid are normal, she has remained SMR. (No refs.) - *B. Berman.*

No address

2269 HELDRICH, FRED J. *Diplococcus pneumoniae* bacteremia. *American Journal of Diseases of Children,* 119(1):12-17, 1970.

*Diplococcus pneumoniae* bacteremia was present in 22 cases (14 males, 8 females; CA range 7 mos to 7 yrs) which presented fever of unexplained origin, inflamation of the upper respiratory tract, and leukocytosis. Twenty-one patients received antibiotic therapy, and all patients recovered. Physical and mental retardation secondary to low birth-weight was present in one male patient (CA 22 mos). Antibiotic treatment was initiated because of pneumonia (7 cases), positive blood culture (6 cases), otitis media (3 cases), pharyngitis (1 case), and tonsillitis (1 case). In 14 cases, antibiotic therapy was initiated on clinical grounds prior to the diagnosis of bacteremia; in 7 cases, treatment began after a positive blood culture was established; and one patient did not receive specific therapy. The clinical picture presented by *Diplococcus pneumoniae* bacteremia included fever, non-specific respiratory tract inflammation, and elevation of the total white blood cell count. (23 refs.) - *J. K. Wyatt.*

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Baltimore, Maryland 21224

2270 INGMAN, MARGARET J. Neonatal *Hemophilus influenzae* septicemia: Originating from maternal amnionitis. *American Journal of Diseases of Children,* 119(1):66-67, 1970.

In 2 cases of neonatal *Hemophilus influenzae* septicemia, the mothers presented clinical evidence of amnionitis, and the infants were infected at birth. Case 1 (wt 5 lbs) was born at 36 weeks gestation and had moderate respiratory distress. Positive smears and culture on the gastric aspirant obtained at birth demonstrated infection of the amniotic fluid. Therapy was a 10-day course of kanamycin and ampicillin. Case 2 (wt 4 lbs, 6 oz) developed respiratory distress shortly after birth. At birth, the patient was cyanotic and cold and had occasional apneic spells. *H. influenzae* Type B was present in a blood culture at 3 days. An exchange transfusion was performed at 1 week, and later, a repeat exchange transfusion was done. The infant was extremely lethargic, had many apneic spells and many occasional periods of opisthotonos, and kernicterus was suspected during the postexchange period. Improvement was slow and development progressed at a slow rate. At one year of age, the child was diagnosed as having cerebral palsy and a seizure disorder. These cases may be the result of a mother with a low or inadequate *H. influenzae* antibody titer, exposure to *H. influenzae,* and/or premature rupture of the membranes. (5 refs.) - *J. K. Wyatt.*

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Irvine, California 92664

2271 Steroids and acute pyogenic meningitis. *British Medical Journal,* 1(5687):6, 1970.

Although steroids were originally viewed as a valuable adjunct to the antibiotic treatment of acute pyogenic meningitis, studies with animals and children provide conclusive evidence that this treatment is now contraindicated. Mortality rates and incidence of subdural hematoma have been higher for patients treated with combined steroids and antibiotics than they were for patients treated with antibiotics alone. The immediate and long-term effects of steroids were investigated in 48 children treated with antibiotics and corticosteroids and 57 children treated with antibiotics and an inert substance. In the steroid group, there were 2 deaths and 9 cases of definite neurological abnormalities. There was one death in the control group and only 2 cases of neurological abnormalities. Incidence of subdural effusion was 17% for both groups. Follow-up times ranged from 6 months to 4 years. (No refs.) - *J. K. Wyatt.*

2272 KABINS, SHERWIN A.; & LERNER, CHARLES. Fulminant pneumococcemia and sickle cell anemia. *Journal of the American Medical Association,* 211(3):467-471, 1970.

The sickle cell hemoglobinopathies may be host factors, similar to the postspenectomy state, that predispose the patient to fulminant pneumococcal infection. Four children with sickle cell hemoglobinopathies died of fulminant pneumococcal infection within a few hours after the onset of symptoms. Intravascular coagulation was suggested in 2 children. Prior diagnoses on these children were hemoglobin S thalassemia disease (1 case), hemoglobin SS disease (2 cases), and anemia and positive sickle cell preparation (1 case). Two patients had recurrent pneumococcal meningitis. Hemoglobin SS disease should be listed as a cause of recurrent bacterial meningitis. Treatment of sickle cell hemoglobinopathies and acute febrile illnesses in children should be with benzylpenicillin G

oxygen and sodium bicarbonate. Heparin sodium should possibly be administered at the earliest sign of altered sensorium, the appearance of petechiae, or drop in blood pressure. (16 refs.) - *J. K. Wyatt.*

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2273 MOVASSAGHI, NASSER; AVERY, GORDON B.; SINGER, LYA; RANDOLPH, JUDSON; & PLEASURE, JEANETTE. Jaundice in neonates; with special emphasis on biliary atresia. *Clinical Proceedings of Children's Hospital of the District of Columbia*, 26(2):51-69, 1970.

The differential diagnosis of neonatal jaundice includes physiologic jaundice, hemolytic disease, infection, bleeding in enclosed spaces, metabolic disorders, and miscellaneous causes including biliary tract atresia. When jaundice persists beyond 4 weeks of life and other common causes have been ruled out, the differential diagnosis is usually limited to hepatitis and biliary atresia. Brief surgical exploration with liver biopsy and cholangiogram is then the procedure of choice. Although less than 10% of cases with biliary atresia are amenable to hook-ups, these children should be identified and corrections made. Complications of laparotomy in hepatitis are probably related to the type of anesthesia and length of the procedure rather than to the procedure itself. (8 refs.) - *E. L. Rowan.*

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Washington, D.C. 20009

2274 BOWES, WATSON A.; GIBSON, JACK L.; LEIBOVITZ, ALBERT; & PALIN, WILLIAM J. Rubella antibody screening in a prenatal clinic using the indirect fluorescent method. *Obstetrics and Gynecology*, 35(1):7-11, 1970.

Of 1,734 pregnant women screened during an 8-month period in a prenatal clinic for military dependents, 294 (17%) were seronegative for rubella antibody by the indirect immunofluorescent antibody technique. Serum was obtained from blood samples which had been taken for routine laboratory tests. Fluorescein-conjugated, anti-human IgG globulin was employed to detect antibody-antigen reactions. A 1:8 serum dilution was utilized as the baseline for establishing seroimmunity. The percent of seronegative (antibody titers at 1:8 dilution) Ss did not appear to be influenced significantly by age or parity; however, of the 144 Negro and 46 Oriental Ss, 18(12.5%) and 24 (52.0%), respectively, were seronegative by this test, and of the 466 Ss questioned about previous rubella infections, 46 (14.5%) of the 319 claiming to have had rubella previously were found to be seronegative, as were 28 (31.0%) of the 87 claiming negative histories of rubella. The finding of a high proportion of seronegative patients among Oriental women is similar to those of other studies which utilized the neutralizing antibody test and in which 60% of 228 prenatal patients in Hawaii were found to be seronegative as were 35% of 193 prenatal patients in Japan. Prenatal examination for rubella antibodies is a useful procedure, at a convenient time, for determining the status of the patient's immunity, and the immediate postpartum period may be the safest period for the immunization of those childbearing women who are found to be at risk. (20 refs.) - *M. S. Fish.*

Madigan General Hospital
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2275 TERRY, M. F. A management of the third stage to reduce feto-maternal transfusions. *Journal of Obstetrics and Gynaecology of the British Commonwealth*, 77(2):129-132, 1970.

Modification of the management of the third stage in the delivery of RH-negative women by allowing fetal blood to drain freely from the cord can reduce the size of transfusions of fetal blood into the maternal circulation and reduce the amount of rhesus antibody formation. Of a group of 125 patients, 67 (54 ABO-compatible and 13 ABO-incompatible) were delivered in the normal manner and 58 (47 ABO-compatible and 11 ABO-incompatible) were delivered by applying forceps to the cord immediately after birth, severing the cord and allowing the placental end to bleed freely. The placental end was then clamped and placental delivery carried out in the regular manner by controlled cord traction. Blood samples from the cord and maternal arm vein were taken, and were examined for fetal cells. Results showed that parity was not a significant factor in fetal blood transfusion, and the mean fetal cell count/50 low-power fields was 49.9 and 9.2 for ABO-compatible women delivered by the control and experimental methods, respectively, and 15.4 and 4.0 for ABO-incompatible women in the 2 groups, respectively. Comparisons of both the groups and the methods were significant ($p < .001$). Even though antibodies may develop when no fetal cells are found in maternal blood, the reported association of antibody formation with large fetal blood transfusions points toward the desirability of modification of the third stage for RH-negative women in the manner described

except in the case of a multiple pregnancy. (7 refs.) - *M. S. Fish.*

Guy's Hospital
London, England

2276 WALSH, J. J.; & LEWIS, B. V. Transplacental hemorrhage due to termination of pregnancy. *Journal of Obstetrics and Gynaecology of the British Commonwealth,* 77(2): 133-136, 1970.

Transplacental bleeding is less likely to occur in pregnancies terminated by hysterectomy or by intra-amniotic injection of glucose than in those terminated by other methods. Termination of 200 pregnancies (dilatation and curettage, 29; vacuum aspiration, 102; hysterectomy, 19; hysterotomy, 24; and injection of glucose, 26) followed by postoperative fetal cell counts utilizing an acid elution technique, resulted in positive cell counts (per 50 low-power fields) in 25% of each of the curettage and hysterotomy groups, in 25.4% of the vacuum aspiration terminations, and in 10.5% and 15.1%, respectively, of the hysterectomy and glucose injection terminations. Of the 200 patients, 5 whose pretermination cell counts were positive were excluded from the postoperative results. The length of gestation had no apparent correlation with the incidence of positive cell counts. Although the development of isoimmunization due to termination appears to occur infrequently, the rhesus antigen is capable of producing an antibody response early in the pregnancy of an RH-negative woman and in the termination of such pregnancies the degree of transplacental hemorrhage may be an important factor. (18 refs.) - *M. S. Fish.*

United Oxford Hospitals
Oxford, England

2277 JOHN, A. HOWARD; MARTIN, ROGER; & BOTHAMLEY, J. Feto-maternal haemorrhage at therapeutic abortion. *Journal of Obstetrics and Gynaecology of the British Commonwealth,* 77(2):137-138, 1970.

Although risk of rhesus immunization resulting from therapeutic abortions is slight, the minimum amount of fetal blood potentially capable of inducing Rh-immunization is so small that anti-D γ-globulin should be given, if available, to all Rh-negative women whose first pregnancy is being terminated. Fetal cell counts were made of venous blood from 106 patients undergoing pregnancy termination by dilatation and curettage (72 Ss) and by abdominal hysterotomy (34 Ss). Positive counts in 50 low-power fields (scores of 1 or more) were obtained in 20 (19%) of the entire group (dilatation and curettage, 13; hysterotomy, 7). One patient, blood group A Rh-negative, had had a 10-week pregnancy terminated by dilatation and curettage following which event no fetal cells and no antibodies were present in the blood. Five months later, in her second pregnancy, her antibody titer was 1 in 1, but rose to 1 in 20 after 4 months at which time labor was induced. The Coombs test was positive, and the infant was jaundiced within 24 hours of birth. An exchange transfusion was successful. This case and other reported ones emphasize the fact that fetal cell scores as low as 0-4 can be associated with rhesus immunization. (6 refs.) - *M. S. Fish.*

Bristol General Hospital
Bristol, England

2278 WADE, MACLYN E.; GORDON, ROBERT O.; & MITCHELL, MALCOLM S. Chemical suppression of primary and anamnestic maternal immunization in Rh-incompatible pregnancies: An animal model. *American Journal of Obstetrics and Gynecology,* 106(2):286-291, 1970.

An animal model system has demonstrated chemical suppression of the primary and anamnestic immune response to human O-positive red blood cells. Female Sprague-Dawley rats, 12 to 14 weeks old, blood group B negative, were sensitized by intraperitoneal injection of 2 or 5 ml of a 50% suspension of washed human O-positive red blood cells on the day of initiation of drug administration. Animals used for the study of the secondary response were presensitized with 1 ml of a 1% suspension of the cells. Cyclophosphamide (Cytoxan) in water (50, 75, or 100 mg/kg) either in a single or a 5-day divided dose was injected intraperitoneally in each of the previously unsensitized and presensitized animals, and cytosine arabinoside in water (500 or 1,000 mg/kg/day) was similarly administered over a 5-day period to a second comparable group. No drugs were given to appropriate control groups. Serial weights, mortality rates, and white blood cell counts provided toxicity data. Hemagglutination titers were determined by standard methods. Results showed that cytosine arabinoside at a level of 1,000 mg/kg/day for 5 days completely suppressed the primary immune response of animals given either the 2- or 5-ml single dose of the 50% cell suspension. The lower dose of this drug (500 mg/kg/day) afforded partial suppression. A dose of 15 mg/kg/day of the Cytoxan also provided complete protection. No significant toxicity was observed for either drug at these dosage levels. The Cytoxan and cytosine arabinoside

similarly protected the presensitized group from a secondary immune response at levels of 20 and 1,000 mg/kg/day, respectively. If a chemical system of this type is applicable to humans, it might prove useful in the management of pregnancies of patients already highly sensitized to the Rh antigen. (28 refs.) - *M. S. Fish.*

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2279 CHERRY, SHELDON H.; ROSENFIELD, RICHARD E.; & KOCHWA, SHAUL. Mechanism of accumulation of amniotic fluid pigment in erythroblastosis fetalis. *American Journal of Obstetrics and Gynecology,* 106(2): 297-302, 1970.

Concentrations of bilirubin in the amniotic fluid appear to depend on the relative gradient of albumin-bound bilirubin across the placental membrane since elevation of albumin content of the amniotic fluid causes an increase in the concentration of bilirubin in the fluid by passage of unconjugated, unbound bilirubin across the membrane from fetus to mother. Samples of amniotic fluid, obtained by amniocentesis from 29 patients (21 normal and 8 hydropic fetuses) were clarified and analyzed for protein and bilirubin concentration. From these results bilirubin to protein ratios were calculated. Similar ratios were obtained also from paired specimens of cord blood and of amniotic fluid from 9 patients, each with moderately severe erythroblastosis. Total protein and bilirubin content of amniotic fluid was obtained for 3 patients with erythroblastosis fetalis both before and 8-12 hours after injection of 1,500 mg of albumin into the amniotic fluid compartment. The % of albumin in total amniotic fluid proteins was approximately the same for both normal and hydropic fetuses (66%) even though total protein content of fluid decreases as pregnancy progresses and is markedly elevated in the presence of fetal hydrops. Injection of albumin into the amniotic fluid elevated the bilirubin content in all 3 patients with erythroblastosis fetalis. For the 9 patients whose amniotic fluid and cord blood were examined, the average saturation of albumin with bilirubin was 2.7 times higher in the cord than that in the fluid. Finally, ultrafiltration and serial specific precipitation studies showed that nearly all of the bilirubin present is strongly bound to the albumin. (13 refs.) - *M. S. Fish.*

Mount Sinai School of Medicine
New York, New York

2280 CRYSTLE, C. DEANS; & RIGSBY, WILLIAM C. Amniocentesis: Experience and complications. *American Journal of Obstetrics and Gynecology, 106(2):310-311, 1970.*

When blood is present in the fluid obtained by amniocentesis of Rh-negative pregnancies, it may be of fetal or maternal origin. If it is the former, it may result in fetal bleeding and possible fetal-maternal transfer with stimulation of maternal immunization; consequently, after a bloody tap, precautions are necessary in order to avoid a second bleeding, during a subsequent amniocentesis, which can accentuate the immunization of the sensitized patient. Of 416 amniocenteses performed on 161 Rh-sensitized patients, 3 complications associated with bloody taps occurred, 2 of which were associated with increased immunization. The infant from 1 of these latter 2 was stillborn due to fatal erythroblastosis fetalis. Recommended precautions include having blood available for transfusions for all cases of bloody taps and performing radioisotopic placental isolation and the utilization of the Freda technique for subsequent amniocenteses if the first gives bloody fluid. (3 refs.) - *M. S. Fish.*

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2281 STENCHEVER, MORTON A.; DAVIES, I. JOHN; WEISMAN, RUSSELL; & GROSS, SAMUEL. $Rh_o$(D) immune globulin: A double blind clinical trial. *American Journal of Obstetrics and Gynecology,* 106(2):316-317, 1970.

In a double blind experiment, 26 treated and 28 control patients who delivered Rh-positive babies were administered ampules containing $Rh_o$(D) immune globulin (300 µg anti-D) and a globulin preparation without anti-D 72 hours after delivery. Blood samples were collected and analyzed for anti-D 48 hours, 6 weeks, and 4 and 6 months after administration. At 6 months postpartum, 1 patient from the treated group and 2 from the control group had anti-D in their serum. The case from the treated group, an Rh-negative, type A mother delivered by cesarean section of an Rh-positive, type O infant, suggests the possibility that larger quantities of $Rh_o$(D) immune globulin may be indicated in high-risk cases. The data, however, are not sufficient to provide support for other reports that $Rh_o$(D) immune globulin is useful in the prevention of Rh-immunization. (2 refs.) - *M. S. Fish.*

Case Western Reserve School of Medicine
Cleveland, Ohio 44106



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2282 LEVINE, SEYMOUR. Allergic encephalomyelitis: Cellular transformation and vascular blockade. *Journal of Neuropathology and Experimental Neurology*, 29(1):6-20, 1970.

By utilizing the technique of cellular passive transfer, a study of the effects of experimental allergic encephalomyelitis (EAE) lesions in rats has shown that clinical signs of EAE decreased in incidence and severity during successive 2-week attacks; the rate of appearance of histologic lesions in the spinal cord decreased after multiple passive transfers; however, 2 or more transfers caused a marked increase in EAE lesions in the cerebellum. Donor and recipient animals were inbred, histocompatible 8- to 10-week-old male Lewis rats. Donor rats were sensitized with emulsified guinea pig spinal cord tissue which was injected in the right hind foot pad and then were injected with concentrated pertussis vaccine in the dorsum of the same foot. Lymph nodes which drained the sites of innoculation were removed after 7 to 8 days when paresis indicated the development of EAE, chopped, sieved into a cell suspension, washed, and injected into the dorsal penile vein of anesthetized recipients. A total of 24 separate transfers were made in 7 individual experiments. The number of lesions present in sections of the cord, cerebellum, and forebrain of the recipients, 7 days after the last transfer, indicated the extent of the EAE effects. Blockage studies which utilized the technique of thermal brain injury were also performed to test a possible cause of the increase of lesions in the cerebellum and their decrease in the spinal cord during successive transfers. Results suggested the possibility that vascular blockage may interfere with the accumulation of perivascular inflammatory cells and thus regulate the intensity of the autoimmune injury, a possible explanation for the nature of the course of demyelinating diseases in man. (18 refs.) - *M. S. Fish.*

New York Medical College Center for Chronic Disease
Welfare Island, New York, New York 10017

2283 BARINGER, J. R.; & GRIFFITH, J. F. Experimental herpes simplex encephalitis: Early neuropathologic changes. *Journal of Neuropathology and Experimental Neurology*, 29(1):89-104, 1970.

Studies of experimental herpes simplex encephalitis in rabbits infected by corneal injection have shown that the order of formation of lesions is in the ganglion cells of the ophthalmic division of the trigeminal nerve, in Schwann and satellite cells, and in neurons and astrocytes in the descending trigeminal tract. New Zealand white rabbits, 3- to 6-weeks old and weighing 300-500 grams were infected *via* corneal scratches with 0.1 ml in each cornea of a suspension of the Rodanis strain of herpes simplex virus containing $10^4$ T.C.D.$_{50}$ for human amnion tissue culture. This virus, originally from the lung of a 10-month-old infant with eczema herpeticum, had been cultured on chorioallantoic membrane and undergone 24 serial passages (2 in cultured human embryo skin and muscle, 3 in chick fibroblasts, and 19 in human amnion cells). Clinical symptoms in the rabbits were: fifth to seventh day, lethargy; seventh to ninth day, tilting and scratching of the head; tenth to twelfth day, occasional twitching of the face, retraction of the head, and clonic movements of the forelimb. Microscopic (bright field, phase, and electron) studies of tissues obtained from animals sacrificed from the second through the twelfth day after infection showed that herpes virus particles were associated with thickening or reduplication of the nuclear membrane with frequent envelopment of the particle. Lymphocytes in the lesions became enclosed in sacs within the endothelial cell and then penetrated the basal surface to enter the parenchyma. Lesions often contained crystalline aggregates (22-24 millimicra) in the cytoplasm of macrophages and endothelial cells. These aggregates likely represent a cellular product associated with the infection. (28 refs.) - *M. S. Fish.*

Veteran's Administration Hospital
San Francisco, California 94121

2284 OTRADOVEC, J. Das klinische Bild der zentralen chorioretinalen Veranderungen bei subakuter sklerosierender Leukoenzephalitis (van Bogaert) [The Clinical Picture of the Central Chorioretinal Changes in Subacute Sclerosing Leucoencephalitis (van Bogaert]. *Ophthalmologica*, 157:427-441, 1969.

Central chorioretinal changes were observed in 9 cases (plus 7 reported in the literature) of subacute sclerosing leucoencephalitis (SSLE). In 30% of the cases, macular changes occurred monocularly or binocularly. Factors confirming the diagnosis of SSLE include the clinical picture, characteristic EEG findings, increase of the γ-globulins in liquor, and section findings. The ophthalmological and neurological symptoms included early vision disturbance preceding psychic changes by 3 to 18 months. Acute phase macular changes were swelling, opacity, radial folds, and occasional hemorrhages. At the chronic or scarred final stage, the macula usually exhibited a round, depigmented

area or scar surrounded by a pigmented border. The macular changes could be attributed to classical diseases or causally connected with immunobiological or neuroallergic processes. (11 refs.) - *S. Glinsky.*

Na Smetana 4
Praha 2, Czechoslovakia

2285 JUNG, K. Diagnostische Massnahmen bei der Prophylaxe der Rhesus-Sensibilisierung mit Immunoglobulin-Anti-D (Diagnostic measures in the prophylaxis of Rhesus sensitizing with immunoglobulin anti-D). *Deutsche Medizinsche Wochenschrift,* 94(33):1654-1655, 1969.

The origin of Rh-erythroblastosis and procedures to determine the presence of fetal erythrocytes are discussed. Prophylaxis of Rhesus sensitivity is important due to the fact that 5,000 out of 1 million children born/year in the Federal Republic of Germany develop hemolytic disease of the newborn. This disease orginates *in utero* as a result of blood group incompatibilities between mother and child, development of maternal immunity bodies against fetal erythrocytes, passage of antibodies through the placental wall, and their binding to fetal erythrocytes. These erythrocytes are determined by means of the blood smear and fixation method of Kleihauer and coworkers employing immunoglobulin anti-D. Prophylaxis is necessary only after the birth of an Rh-positive child. (9 refs.) - *S. Glinsky.*

Stadtische Krankenanstalten, Frauenklinik
67 Ludwigshafen, Germany

2286 JUNG, K. Zur Prophylaxe der Rhesus-Sensibilisierung mit Immunoglobulin-Anti-D (On the prophylaxis of Rhesus sensitizing with immunoglobulin anti-D). *Deutsche Medizinische Wochenschrift,* 94(33):1655-1657, 1969.

Present knowledge regarding the prophylaxis of Rhesus sensitization with immunoglobulin anti-D promises ultimate prevention of Rh-hemolytic disease. Proceeding from the finding that a high titer dosage of immunoglobulin anti-D reduces the break-down time of $Hb_F$ cells to 3-12 hours, research groups are working on the prophylaxis of sensitization. A German study group suggests a minimal sensitization prevention dosage of 200 mg of immunoglobulin anti-D for influxes of up to 10 ml of fetal erythrocytes. The sensitization rates of non-treated patients are influenced by the number of $Hb_F$ cells. Of 2,039 women treated with immunoglobulin anti-D 1 hour after birth, 0.6% exhibited antibody findings 4 to 6 months later. Of 114 second children from prophylactically treated mothers, only 1 child (0.9%) contracted Rh-hemolytic disease. All Rh-negative patients delivering an Rh-positive child and demonstrating negative Coombs test results should have prophylaxis. Various side effects attendant upon the prophylaxis must still be studied. (12 refs.) - *S. Glinksy.*

Stadtische Krankenanstalten, Frauenklinik
67 Ludwigshafen, Germany

2287 LUDWIG, H. Toxoplasmose (Toxoplasmosis). *Schweizerische Medizinische Wochenschrift,* 98(10):387-389, 1968.

Although the toxoplasmosis virus is generally not harmful to man due to its low virulence, it can lead to death when a latent infection is reactivated in connection with lowered patient resistance. Lowered resistance can result from another disease, from a high dosage corticosteroid treatment, or from immunosuppressive therapy. The infection path remains unresolved. Diagnosis by the dye test is not completely positive, since the test titer can exhibit an occasional steep rise without any symptoms of the disease. Only the demonstration of a protozoa permits certain diagnosis of a fresh infection. The glandular form of the disease is most common, yet it is often not recognized as such. Prenatal infection is possible. Since nothing new has developed in the therapy of the disease, therapy should be undertaken only when severe symptoms or an abnormally high antibody titer exist. (24 refs.) - *S. Glinsky.*

Burgerspital
CH-4000 Basel, Switzerland

2288 Price of rubella immunity: Arthritis-like symptoms. *Medical World News,* 11 (1):5, 1970.

Arthritis-like symptoms may appear in children who have been given the HPV-77 and the HPV-77 DK 12 strain rubella vaccine. Joint stiffness or arthralgia appears as late as 55 days after immunization, with a mean of 18 days, and lasts from 1-46 days. Although the symptoms resulting from the vaccine are transient, respond well to aspirin, and clear without residual effect, they can be confused with juvenile rheumatoid arthritis. The Department of Health, Education, and Welfare recommends that only children aged 1-12 receive the vaccine. The vaccine is not recommended for women since it is not known if the vaccine's virus will infect the fetus of a pregnant woman. The virus may still be present in the inoculated woman for up to 3 months afterwards. (No refs.) - *C. L. Pranitch.*

2289 POLK, LEWIS D. Rubella--When not whether. *Clinical Pediatrics*, 9(2): 65-66, 1970.

To predict the date of the next rubella epidemic in a local area, the exact date of the last epidemic and the interval between epidemics are needed. These 2 facts, however, cannot be determined with great precision. Most epidemiologists place the date of the last epidemic as 1964, with a major peak of reported cases occurring in the spring. The expected interval between outbreaks is determined by the period needed to develop a large enough pool of rubella-susceptible persons to permit an epidemic. If the spring of 1964 is taken as the date of the last epidemic and an interval of 6-9 years is used, the next rubella epidemic would occur between the spring of 1970 and the spring of 1973. Since an effective vaccine is available, an immunization campaign might prevent or greatly reduce the size of the next epidemic. (2 refs.) *C. L. Pranitch.*

Philadelphia Department of Public Health
Philadelphia, Pennsylvania 19146

2290 ARIAS, IRWIN M. Bilirubin metabolism: Research aspects. *Hospital Practice*, 5(1):27-33, 1970.

New findings on the biochemistry of blood-bile transport of bilirubin have shed light on many liver impairments that affect child development. The liver's selectivity for substances like bilirubin is attributed to 2 protein receptors (Y and Z) isolated from liver cytoplasm. These receptors, which show progressive development in newborns, are important in hepatic uptake and are implicated in so-called physiologic jaundice seen in newborns (unconjugated hyperbilirubinemia and yellow coloring may be due to uptake and Y protein, rather than conjugation and glucuronyl transferase). The chain of events in bilirubin uptake, conjugation, and excretion is further complicated by still unclear action of phenobarbital, which strongly affects the Crigler-Najjar syndrome (inherited glucuronyl transferase deficiency). Several etiologies are involved in this deficiency, which is a cause of either benign or severe jaundice in infants. Various cholestatic (bilirubin excretion) defects are involved in several inheritable pathologies, in hepatitis, and in some cases of drug-induced jaundice. Research is limited by absence of a suitable animal model. (5-item bibliog.) *B. Berman.*

Albert Einstein College of Medicine
New York, New York

2291 JAVITT, NORMAN B. Differentiation and management of the patient with jaundice. *Hospital Practice*, 5(1):34-39, 1970.

Biochemical and physiologic studies of the liver's excretory functions have clarified bilirubin and bile-salt excretion pathways, and the clinical treatment of jaundice and cholestasis. Serum bile-salt levels give better indication of hepatic abnormality than does bilirubin. New information is available also on several noncholestatic diseases affecting bilirubin transport. These are characterized by hyperbilirubinemia (HBR), involving maternal-fetal blood-group incompatibilities that accelerate erythrocyte destruction and frequently affect newborns with serious brain damage by depositing free bilirubin in neuronal tissue. Unconjugated HBR is involved in rare genetic disorders (Crigler-Najjar and Gilbert's syndromes). Defects in transport of anions from the hepatocyte to the bile canaliculus are seen in the Dubin-Johnson syndrome (chronic idiopathic jaundice). The cholestatic phase of hepatitis can be detected in a plasma macromolecule that distinguishes viral hepatitis from common bile-duct obstruction. Primary biliary cirrhosis is seen almost exclusively as a cholestatic involvement with hepatomegaly and often splenomegaly. Additional research into liver excretion will help diagnose and treat cholestatic syndromes. (No refs.) - *B. Berman.*

New York Hospital-Cornell Medical Center
New York, New York

2292 PITT, DAVID. Congenital rubella--The problem. *Australian Journal of Mental Retardation*, 1(1):9-11, 1970.

In earlier days, rubella was considered a trifling acute illness in postnatal life, but today, with the discovery of the chronic congenital form, it is recognized as a handicapping and infectious process which occurs in 1 of every 2,500 children born. Long-term, follow-up studies after episodes of rubella in Australia in 1956-1959 indicated that defects from the disease were multiple, with deafness being the most frequent handicap, followed by heart and eye defects. A study of the number of rubella cases among multiply handicapped children at an MR training center showed a low proportion of cases, although the number is increasing. Considerable work is being done in the localities surrounding the center by parents, medical specialists, and other professionals to relieve handicaps, but services are inadequate for the multiply handicapped. Although increasing numbers of children are being hospitalized in the United States, several billions of dollars are required to support medical and educational

needs after the 1964-1965 epidemic in this country. (18 refs.) - *B. J. Grylack.*

Children's Cottages Training Centre
Kew, Victoria, Australia 3101

2293 FENNER, FRANK. Pathogenesis of rubella infection. *Australian Journal of Mental Retardation,* 1(1):12-15, 1970.

Postnatal rubella is a minor disease, since the rubella virus is an almost innocuous agent in regard to its capacity to damage cells. In this generalized exanthematous illness, a rash usually appears on approximately the fourteenth day from the onset of infection. Its symptoms are caused by the response of the host organism rather than by damage from the virus itself. The reagin antibody IgE may be significant in its pathogenesis. The embryo may be infected at any time during the second week of incubation. Congenital defects following rubella in the mother are rare when the mother is infected after the first trimester, but the virus always affects fetal mesenchyma when the placenta is infected during the first trimester. Fetal rubella is not fatal. However, affection of cells may lead to distortion of the developing organs or to widespread mitotic inhibition. Unlike the relatively short-lived effects of postnatal rubella, congenital infection is often associated with prolonged persistence of the virus. In some cases, defects caused by rubella may not be recognized until several years after birth. (8 refs.) - *B. J. Grylack.*

Australian National University
Canberra, A.C.T., Australia 2600

2294 FERRIS, A. A. Serological diagnosis and rubella vaccines. *Australian Journal of Mental Retardation,* 1(1):16-18, 1970.

Since the isolation of rubella in 1962, striking progress has been made in diagnosis. Diagnostic information can be obtained by at least 3 different serological methods. The hemagglutination-inhibition test, which provides information rapidly and is a sensitive and highly specific index, is the best method for general use. It must be used with caution for the determination of rubella antibody levels, however, since technical difficulties are common when an attempt is made to remove nonspecific inhibitors from sera without removing specific antibody. Awareness of the risk involved in utilizing rubella virus as a vaccine for man has led to the attenuation of the virus and to the development of 3 vaccines. While all of them are effective immunizing agents which produce 90% or more seroconversion in individuals with no pre-existing antibody, there is no proof that attenuated rubella viruses will not have some harmful effects on the host organism. At the present time, the American system of vaccinating all children and the Belgian-British system of vaccinating high-risk groups are the 2 major procedures in use. (1 ref.) - *B. J. Grylack.*

Fairfield Hospital
Fairfield, Victoria, Australia 3078

2295 EVANS, JACK L. Control of infectious diseases other than rubella. *Australian Journal of Mental Retardation,* 1(1): 19-22, 1970.

Although infectious diseases are not among the major causes of MR, they must be combated in view of the heterogeneous nature of MR and the multiplicity of its causes. Infectious diseases leading to MR which are acquired prenatally include rubella, toxoplasmosis, congenital cytomegalovirus, syphilis, and infection with herpes simplex virus which can also be acquired perinatally. Postnatal infections produce MR much more commonly than prenatal infections do. Significant progress has been made in the prognosis and treatment of the bacterial meningitides within the last 25 years, but central nervous system sequelae and MR from this type of illness have still not been eliminated completely. Viruses causing infectious disease are most likely to do permanent damage if they occur in the first 2 years of life. Vaccines against measles and mumps have already been tested successfully, but more complex measures may be required to combat other members of this viral group. Recent findings link Down's syndrome with infective hepatitis without determining whether or not the relation is a causal one. Developments and research in this area will provide valuable information on many infectious disease problems. (17 refs.) - *B. J. Grylack.*

Children's Cottages Training Centre
Kew, Victoria, Australia 3101

2296 Neurological complications of influenza. *British Medical Journal,* 1(5691):248-249, 1970. (Editorial)

The recent influenza virus epidemic has been associated with 3 neurological syndromes: an encephalopathy, a myelopathy, and a periferal neuropathy. An encephalitis appears at the height of flu symptoms and apparently results from direct viral invasion of the brain. Prognosis is poor if coma develops. A milder encephalopathy may occur during the recovery

phase of influenza. The myelopathy takes the form of a transverse myelitis, is associated with the recovery phase, and responds well to corticotrophin. The acute periferal neuropathy resembles the Guillian-Barre syndrome, is again associated with the recovery phase of illness, and results in spontaneous recovery. (No refs.) - *E. L. Rowan.*

2297 NACHMAN, RICHARD L. Low birth weight related to toxicity. *Journal of Pediatrics,* 76(2):327-328, 1970. (Letter)

In low birth-weight infants, there is an increased susceptibility to the transmission of outside foreign substances into the systemic circulation through intact skin. This can be demonstrated by the production of localized cutaneous blanching when phenylephrine hydrochloride solution is placed on the skin. The intensity of blanching is inversely related to gestational age. This increased permeability before 38 weeks gestational age should be considered before the infant is exposed to potentially toxic substances. (4 refs.) - *E. L. Rowan.*

Columbus Children's Hospital
Columbus, Ohio 43205

2298 PITT, DAVID; CHAKANOVSKIS, JOANNE; McCROHAN, MARGARET; ROBOZ, PAUL; & WIENER, SAUL. Lead poisoning in retarded children. *Australian Journal of Mental Retardation,* 1(2):58-60, 1970.

The results of 3 studies of lead poisoning in MR children were mostly negative but indicate that primary lead intoxication is an occasional cause of MR. Analysis of the blood levels of 30 institutionalized MR children and 20 institutionalized disturbed children revealed 6 cases among the MRs in which blood levels were higher than 40 mcg/100 gm. In 3 of these cases, there were other signs of chronic lead ingestion. Blood levels were examined by the wet-ashing method followed by mixed color Dithizone extraction. Affected Ss also had the triad of coproporphyrins in the urine, excess stippled cells in the blood, and neurological evidence of lead disposition at the growing ends of long bones. In 2 cases, MR has been present since infancy, and both had the habit of pica. Both cases improved without treatment, although the source of lead was not identified. The third case, an SMR boy with progressive spastic quadraplegia and epilepsy, appeared to be a primary case. He evidenced normal development until age 4 years. At this time, he was admitted to a hospital because of sudden drowsiness, convulsions, and weakness of limbs. This was followed by: MR; loss of interest in self, family, and surroundings; and progressive weakness. He became bedridden at age 12 and had a raised blood level of 74 mcg/100 gm, lead intoxication, and coproporphyrinuria at age 14. Death due to empyema and pericarditis occurred at age 16. A hemoglobin survey of 31 institutionalized infants, mostly mongoloid, revealed 1 case of lead poisoning in which the child had chewed paint containing excess lead from a crib. (6 refs.) *J. K. Wyatt.*

St. Nicholas Hospital
Carlton, Victoria, Australia 3053

2299 BROWN, R. J. K.; VALMAN, H. B.; & DAGANAH, EVE G. Diarrhoea and light therapy in neonates. *British Medical Journal,* 1(5694):498, 1970. (Letter)

Diarrhea appears to be a complication of phototherapy for hyperbilirubinemia in the premature infant. This was observed in several infants and ceased when phototherapy ceased or when the light was turned off for one hour in four. This side effect should be considered before a diagnosis of acute gastroenteritis is made in an infant under treatment. The etiology of such diarrhea is unknown. (3 refs.) - *E. L. Rowan.*

Hackney Hospital
London E. 9, England

2300 KLEMOLA, ERKKI. Recurrent virus meningitis. *British Medical Journal,* 1(5695):564, 1970. (Letter)

The report of 2 separate attacks of aseptic meningitis by different viruses in the same individual prompts the recollection of similar multiple attacks in 4 patients, in 2 of whom the etiology also appeared to be multiple. In addition, 6 patients with recurrent meningitis of viral etiology have also been noted. (1 ref.) - *E. L. Rowan.*

Aurora Hospital
Helsinki, Finland

2301 DEKABAN, ANATOLE S.; & KAPPY, MICHAEL S. Late form of congenital rubella syndrome: Thoughts on pathogenesis. *Clinical Proceedings of Children's Hospital of the District of Columbia,* 26(5):152-156, 1970.

An 8 1/2-month-old infant with general malaise, failure to thrive, and hepatosplenomegaly occurring after 3 months of age was found to have an unexpected late form of congenital rubella on serological testing. It is hypothesized that the virus emerged after

the disappearance of passively acquired maternal IgM antibody and before the infant's own active IgG antibody became dominant. The mother gave a history of an exanthem during the third month of pregnancy. The child showed residual perceptual deafness and MR. (9 refs.) - *E. L. Rowan.*

National Institute of Neurological Disease and Stroke
Bethesda, Maryland 20014

2302 LIN-FU, JANE S. Childhood lead poisoning--An eradicable disease. *Children,* 17(1):2-9, 1970.

Despite known etiology and methods for screening, diagnosing, and treating, lead poisoning exists in epidemic proportions in many cities. Ideally, childhood lead poisoning can be eradicated by slum clearance and urban renewal with the provision of adequate housing for families of low incomes. Such a solution is a long-term goal, but lead poisoning can be substantially reduced through education, early detection, treatment and follow-up programs which include removal of lead from houses wherever it is found. Mass media communication should point out the dangers of eating paint and mass screening programs in slum areas should be instituted for all children under 6 years of age. Diligent enforcement of health and housing codes, a portable lead detection device, and an inexpensive method for paint removal would also contribute to the reduction of lead poisoning. (6 refs.) *C. L. Pranitch.*

No address

2303 Vaccination against rubella. *British Medical Journal,* 1(5692):318-319, 1970. (Editorial)

The prevention of rubella-caused congenital deformities is now possible in Great Britain by use of the newly licensed Cendehill vaccine. This vaccine, like the HPV-77, is a live attenuated rubella virus vaccine but is produced by serial passage in primary rabbit kidney. The HPV-77 vaccine, on the other hand, is obtained from serial passage in cultures of vervet monkey cells and its contamination with extraneous agents precludes its administration parenterally. The RA 27/3 vaccine, produced in human fetal diploid cultures, has the advantage of being effective by intranasal administration, but the possibility of the presence of human genetic material which may contain unknown agents has precluded the licensing of the vaccine. Since locally produced antibodies are now known to be important in establishing immunity, natural infection or intranasal administration of vaccine may provide the best protection. Preliminary reports indicate that virus can be transmitted across the placenta to the fetus; therefore, care must be exercised that vaccination not be carried out during pregnancy. Vaccination may best be done on women immediately after childbirth and on 11- to 13-year-old females. Finally, when more vaccine is available, younger children of both sexes can be immunized since data indicate that vaccine-induced immunity from rubella may be long-lasting. (18 refs.) - *M. S. Fish.*

2304 LEVINE, MICHAEL S.; *BOXERBAUM, BERNARD; & HEGGIE, ALFRED D. Recrudescence of *H. influenzae* meningitis after therapy with ampicillin. *Clinical Pediatrics,* 9(1):54-57, 1970.

In the treatment of meningitis with ampicillin, the passage of the drug across the blood-brain barrier into the cerebrospinal fluid (CSF) may diminish as the inflamed meninges heal, causing recrudescence of the disease. The S, a 4-month-old boy, had been treated 5 days previously with crystalline and procaine penicillin for pneumonia and 1 month previously with ampicillin (100 mg/kg/24 hours intramuscularly for 2 days and orally for 8 days) for bilateral otitis. On admission, he was lethargic and had a stiff neck and a bulging anterior fontanelle; Brudzinski and Kernig signs were positive. The infection, *H. influenzae,* type B, was treated intravenously every 4 hours with ampicillin (250 mg/kg/24 hours) and intramuscularly every 6 hours after the patient began to improve. After 11 days, ampicillin was discontinued; however, the development of a fever and CSF examination after 15 days prompted reinitiation on the seventeenth day of the therapy, this time with chloramphenicol (125 mg every 6 hours, intravenously) and crystalline penicillin. Cultures indicated that *H. influenzae* had been present in the CSF on the eleventh day and was still present on the seventeenth. Penicillin was discontinued when the level of the drug in the CSF was found to be 0.39 µg/ml, but chloramphenicol was continued orally until the twenty-ninth day when recovery appeared to be well underway and the cultures were negative. The findings in this case and in other reported ones indicate that the route of administration of ampicillin appears to be important, and even when intravenous injections are utilized, the initial dosage should be no less than 300 mg/kg/24 hours, given at 4-hour intervals. Dosages should not be reduced when the route of administration is changed, and follow-up should continue for 4 or 5 days, including examination of the CSF. (15 refs.) - *M. S. Fish.*

*Babies and Children's Hospital
Cleveland, Ohio 44106

2305 SERIKI, O. Pyogenic meningitis in infancy and childhood: A survey of this disease based on observations of 156 African patients with a high mortality rate. *Clinical Pediatrics*, 9(1):17-21, 1970.

Significant factors associated with a high mortality rate for pyogenic meningitis are age of the patient, delay in appearing for treatment, associated diseases, and the nature of the infecting organism. Ss were a group of 156 African patients between the ages of 3 days and 10 years and in whom cerebral spinal fluid examination showed the cell count of polymorphic leukocytes to be 15 or more, protein levels of 45 mg/100 ml or higher, and sugar less than 50 mg/100 ml. Most frequent symptoms included fever, convulsions, cough, diarrhea, and vomiting. Neck stiffness and full or tense fontanella were frequently observed. Combined treatment with penicillin, sulfonamide, and chloramphenicol was carried out until the identity of the infecting organism was known at which time therapy was continued with the appropriate single drug. Respiratory infections, anemia, and other illnesses were found associated with the disease in many of the patients. Of the entire group, 38 (24.3%) died. Mortality was highest among the neonates, and pneumococcal and *Hemophilus influenzae* infections caused 12 and 10 of the deaths, respectively. Of the 118 survivors who were followed for varying periods of time, the following sequelae were noted: MR with spasticity in 9 Ss; MR without spasticity in 6; recurrent convulsions in 3; hydrocephalus in 3; blindness in 2; aphasia, deafness, and ataxia in 1; and ataxia in 1. (11 refs.) - *M. S. Fish.*

University of Ibadan
Ibadan, Nigeria

2306 RENNERT, OWEN M.; WEINER, PAUL; & MADDEN, JOHN. Asymptomatic lead poisoning in 85 Chicago children: Some diagnostic, therapeutic, prognostic and sociologic considerations. *Clinical Pediatrics*, 9(1): 9-13, 1970.

Asymptomatic lead poisoning presents a number of problems in diagnosis and treatment since little is known of the long-term effects of lead which is present at low levels, and bone stores of lead are not bound by chelating agents and can remain toxic for over 18 months after blood levels are normal. The study group was 85 children, aged between 6 months and 7 years, with blood lead levels greater than 60 µg/100 ml and ranging as high as 190 µg/ml. Besides blood lead levels, laboratory tests included diagnosis for asymptomatic lead poisoning: anemia, coproporphyrinuria, lead lines, lead in abdomenal area, and stippled red blood cells. In only 1 case were all 5 of these diagnostic criteria positive. The highest correlation with blood lead level was found by radiologic studies of the knees for increased density (lead lines). Of the entire group, 90% was asymptomatic for the usual clinical signs of lead poisoning. The dose regimen was initiated by intramuscular injection of 4 mg/kg of dimercaprol (BAL), followed by a second dose of a BAL-calcium disodium versenate (EDTA) mixture on the same day. This mixture was injected twice the following day and once on the third, followed by injections of EDTA alone up through the morning of the sixth day. Lead levels in blood and urine were monitored, and therapy repeated until blood and urine levels were below 20 and 80 µg/100 ml, respectively. Follow-up monitoring of blood lead levels was continued for a year. Each child required 2 or more courses of therapy. None had developed encephalopathy or any neurologic deficit 18 months later. (17 refs.) - *M. S. Fish.*

University of Florida College of Medicine
Gainesville, Florida 32601

2307 GOTOFF, S. P.; & *BEHRMAN, R. E. Neonatal septicemia. *Journal of Pediatrics*, 76(1):142-153, 1970.

Prompt initiation of therapy in cases of suspected septicemia can be effective and result in complete recovery. As a consequence, a physician must be willing to misdiagnose or overdiagnose clinically in cases where septicemia is possible since serious morbidity and mortality can result if treatment is not prompt. Proper antibiotic management can be made once bacteriologic cultures are available to provide a definite diagnosis and guide. Before this evidence is available, however, use of ampicillin and kanamycin during the first 72 hours is recommended for suspected cases of septicemia. Beyond 72 hours, oxacillin and kanamycin are useful until specific diagnosis is made. Complications associated with septicemia (adrenal insufficiency, shock, intravascular coagulation, hyponatremia, and other types of infections) often occur, and the physician should be prepared to manage them. (29 refs.) -*M. S. Fish.*

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Chicago, Illinois 60680

2308 ODELL, GERARD B.; STOREY, G. N. BRUCE; & ROSENBERG, LEON A. Studies in kernicterus: III. The saturation of serum proteins with bilirubin during neonatal life

and its relationship to brain damage at five years. *Journal of Pediatrics,* 76(1):12-21, 1970.

The saturation of an infant's sera with bilirubin correlated significantly ($p<.01$) with the extent of later brain damage in 32 children (CAs 4 to 7 yrs) who had been jaundiced at birth. None had physical signs of classical kernicterus. Data included complete medical history and physical examination, serial determination of serum bilirubin and total protein, saturation index of serum proteins with bilirubin (salicylate displacement method), and psychometric tests (Stanford-Binet or Wechsler Intelligence Scale for Children, Bender Visual-Motor Gestalt, Sequin form board, Children's Embedded Figures, Reitan's Trail Making test). Of the group, 18 were classified as abnormal on the basis of psychometric testing. More seriously damaged Ss had low IQ and other abnormalities. The cognitive functioning tests showed signs of brain damage for several Ss in the normal IQ range. Although the incidence of brain damage appeared to correlate with a high saturation index of sera with bilirubin during infancy, no significant correlations were found between presence or absence of brain damage and maximum bilirubin concentration, birth weight, sex, hemolytic disease, or the use of exchange transfusion. (39 refs.) -*M. S. Fish.*

Johns Hopkins University School of Medicine
Baltimore, Maryland 21205

2309 VINCE, DENNIS J. The hospital incidence and clinical significance of congenital heart malformations resulting from rubella embryopathy. *Canadian Medical Association Journal,* 102(4):374-376, 1970.

The probability of underdiagnosis of rubella embryopathy is indicated in a survey of 75 children (37 boys and 38 girls) selected over a 4-year period either on the basis of a history of maternal rubella in the first trimester of pregnancy plus the presence of 1 or more of 3 specific defects (nerve deafness, congenital heart malformation, or ocular defect) or in the absence of a history of maternal rubella in the first trimester but with the presence of 2 or more of the above defects. Of this group, 63 were children of mothers satisfying the first criterion (although 70 mothers had known exposure sometime during pregnancy), 64 had cardiovascular malformations, 37 had ophthalmological defects, 31 had nerve deafness, and 3 were MR. The principal cardiovascular malformations were: patent ductus arteriosus (36), ventricular septal defects (22), and pulmonary valvular stenosis (17). Analysis of birth dates of the infants showed clustering over a 5-month period indicating the liklihood of an undiagnosed rubella epidemic approximately 9 months previously. The high incidence (93%) in this study of known exposure of the mothers to rubella and the difficulty of retrospective diagnosis of rubella embryopathy suggests the probability of underdiagnosis of this condition. (22 refs.) - *M. S. Fish.*

University of British Columbia
Vancouver 9, British Columbia, Canada

2310 Amoebic meningitis. *Lancet,* 1(7639): 184, 1970.

Recently reported cases of amoebic meningitis caused by *Naegleria* and *Hartmanella* genera most likely represent the recognition of an infection which has escaped past detection. This usually fatal disease is characterized by a history of warm weather bathing, most often in a natural pool, and clinical symptoms of acute meningitis. Although visualization of the parasite in the cerebral spinal fluid is often difficult, its presence there is characterized by red cells mixed with pus and can usually be demonstrated on repeated examination. The parasites have a diameter of about 10μ and are best observed in a wet preparation on a warm stage. Although the infection is rare, the distribution of these and similar parasites in nature is unknown, and considerably more information on their occurrence and pathogenicity is needed. (4 refs.) - *M. S. Fish.*

2311 HALSTEAD, SCOTT B.; CHAR, DONALD F. B.; & DIWAN, ARWIN R. Evaluation of three rubella vaccines in adult women. *Journal of the American Medical Association,* 211(6):991-995, 1970.

Cendehill and Benoit C strains of rubella vaccine appear to be clinically and immunogenically preferable to Benoit B vaccine. The Ss were adult female students (CAs 18 to 37 yrs) divided into 2 groups receiving vaccines on 2 separate dates. Rubella vaccines were Benoit B strain (passages in primary grivet monkey kidney (GMK) cells, embryonated hen's egg and duck embryo cell cultures 19, 1, and 20 times, respectively), Benoit C strain (passages in GMK cells, hen's eggs, and duck embryo cell cultures 11, 1, and 20 times, respectively), and Cendehill vaccine (isolated in GMK cells and passed 53 times in rabbit kidney cultures). The Benoit B, Benoit C, and Cendehill strains were given, respectively, to 7, 28 and 11 susceptible Ss, with assignments made on

a random basis, and to 4, 1, and 6 Ss with prevaccination rubella antibody. Urinary gonadotropin content, antibody responses (at 14, 21, and 35 days) and clinical responses (sore throat, rash, arthralgia, and post-auricular adenopathy) were determined for each S. Antibody titers indicated that all Ss had significant antibody response. Although subjected to fewer passages, Benoit C is more highly attenuated than are Benoit B and Cendehill vaccines; however, Benoit B produced rubella-like symptoms, including arthralgia, in 5 of the 7 Ss. Antibody titers of the 3 vaccines were highest in Benoit B and lowest in Benoit C. Since all susceptible Ss developed titers greater than 1:10, the Cendehill and Benoit C strains seem to offer acceptable immunogenic protection without unacceptable clinical reactions. (9 refs.) - *M. S. Fish.*

University of Hawaii School of Medicine
Honolulu, Hawaii 96816

2312 KITCHEN, W. H. Neonatal mortality in infants receiving an exchange transfusion. *Australian Paediatric Journal*, 6(1): 30-40, 1970.

The death rate due to exchange transfusions for Rh immunization in infants is approximately double that caused by transfusions for jaundice from other conditions. Case histories were reviewed over an 18-year period for 1,160 infants receiving a total of 1,830 exchange transfusions. Of this group, 854 had Rhesus incompatibility, and 306 had jaundice due to ABO incompatibility, prematurity, or other conditions. Comparison of data from the Rh-incompatible group with that from the other group showed that the neonatal mortality (during the first 28 days) was 84 (9.8%) and 10 (3.3%), respectively, while death due to the exchange transfusion was 1.3%, and 0.6%, respectively. The erythroblastotic infants showed an increase in 6-hour mortality with decrease in birth weight, whereas 6-hour mortality was very low for all birth weights of the other group. Most of the erythroblastotic infants died from hydrops or pulmonary causes regardless of gestational period; whereas, 6 of the 10 deaths of the other group were of infants born with gestational periods of 28-30 weeks. High risk of mortality was associated with cord hemoglobin of 8 g or less, and the risk increased in proportion to the severity of respiratory distress, particularly when cord hemoglobin was less than 10 g. Results of the study indicate that the risks of exchange transfusions are acceptable for infants with jaundice due to either hemolytic disease or immaturity. (20 refs.) - *M. S. Fish.*

University of Melbourne
Parkville, Victoria, 3052, Australia

*Trauma or physical agents*

2313 BONDAREFF, WILLIAM; MYERS, RONALD E.; & BRANN, A. W., JR. Brain swelling and extracellular space changes in term fetuses subjected to prolonged partial asphyxia. Unpublished report, 19 p. Mimeographed.

There was a significant decrease in the relative volume of the extracellular space of cerebral cortex in rhesus monkey fetuses subjected to prolonged partial asphyxia *in utero*. Brain sections of 3 control and 2 asphyxiated fetuses were prepared with freeze-substitution and freeze-drying techniques and the extracellular volume estimated stereometrically. Asphyxiated animals had 4.1% extracellular space while controls had 9.1%. The brain swelling associated with asphyxia appears to result from a shift of fluid from extracellular to intracellular compartments. A similar shift from cytoplasm into mitochondria results in architectural disruption of the latter. (21 refs.) - *E. L. Rowan.*

Northwestern University Medical School
303 East Chicago Avenue
Chicago, Illinois 60611

2314 POLLACK, MAX. Suspected early minimal brain damage and severe psychopathology in adolescence. *Adolescence*, 4(15):361-384, 1969.

A survey of 623 patients (aged 15 to 25) discharged from a private psychiatric hospital revealed 12 individuals who had been previously diagnosed as schizophrenic or personality disordered and were later found to have minimal brain dysfunction. Important characteris-

tics of this group were a 5:1 male-female ratio, poor perceptual-motor performance on psychological testing, EEG abnormalities (in 7 Ss), the presence of neurological "soft signs," a history of paranatal difficulty, and a developmental history of poor socialization. This constellation of factors should alert the physician to consider an etiologic diagnosis rather than a behavioral one. (22 refs.) - *E. L. Rowan*

Hillside Hospital
75-59 263 Street
Glen Oaks, New York

2315 BRANN, A. W., JR.; MYERS, R. E.; & DIGIACOMO, R. The effect of halothane induced maternal hypotension in the fetus. Paper presented at the Second Conference on Experimental Medicine and Surgery in Primates, New York, New York, September 1969, 10 p. Mimeographed.

*In utero* monitoring revealed hypoxia, hypercarbia, and acidosis in 15 of 16 fetal macaca mulatta monkeys when mothers were subjected to graded hypotension under halothane anesthesia. The degree of fetal asphyxia showed no linear relationship to the severity of maternal hypotension, however. The reason for this lack of correlation is unclear. Previous studies had shown that brain swelling, cortical necrosis, and ulegyria were associated with fetal asphyxia. (4 refs.) - *E. L. Rowan.*

Children's Hospital
University of Mississippi Medical Center
Jackson, Mississippi 39210

2316 MYERS, RONALD E. Fetal asphyxia and perinatal brain damage. *Perinatal Factors Affecting Human Development*, PAHO Scientific Publication No. 185, 1969, p. 205-214.

Evidence now suggests that, contrary to the commonly accepted belief that perinatal brain injury is due to asphyxia during pregnancy or at birth, brain abnormalities may relate to events during pregnancy but need not be sudden and catastrophic and may show up later in life. What is indisputed is that fetal damage results from severe and prolonged partial asphyxia *in utero*. An impaired respiratory-gases exchange between maternal and fetal blood streams accumulates carbon dioxide in the fetal blood with accompanying oxygen-partial-pressure deficiencies and a severe base deficit caused by acidosis. More extensive necrosis is generally associated with more deteriorated blood chemistry. Further, brain pathology depends not only on degree but also on duration of asphytic compromise. Acute total asphyxia and prolonged partial asphyxia in animals yield 2 quite distinct brain-pathology patterns; the former affects largely the brain stem while the latter produces hemispheral damage closely resembling that of human cerebral palsy. (25 refs.) - *B. Berman.*

No address.

2317 PEARLSTONE, ARNOLD D.; & BENJAMIN, RHODA. Ocular defects in cerebral palsy. *Eye, Ear, Nose, and Throat Monthly*, 48(7):437-439, 1969.

An ophthalmologic evaluation (extra-ocular muscle function, degree and type of strabismus, fusion testing, visual acuity, and cyclopegic refraction) of 30 cerebral palsy patients confirmed a high incidence of strabismus and refractive error. Of the 43% with significant refractive error, 27% (8) needed glasses; spectacles provided dramatic improvement. Strabismus proved less susceptible to therapy; however, if patients are examined early, patching or glasses may prevent amblyopia or deep suppression, but by the time they are usually examined, fusion is no longer attainable. The need is great for early and complete ocular examination and therapy in persons with cerebral palsy. (8 refs.) - *B. Berman.*

Yale University School of Medicine
New Haven, Connecticut 06510

2318 REEVES, KATHRYN R. Children's reactions to head injuries. *American Journal of Nursing*, 70(1):108-111, 1970.

When caring for children with head injuries or other central nervous system disorders, observation of behavior traits can be critical to the subsequent programing and treatment. Wide ranges of normal behaviors for children of any given age pose difficulties in assessing aberrance. To limit guesswork in evaluating the neurologic states of young patients, the Childrens Hospital of Orange County, California has developed a questionnaire which is to be completed by parents of any child whose level of consciousness is of critical importance. This information provides a word picture of a child's normal activity level, both day and night. Four variations of the basic questionnaire are appropriate for four different age groups. (4 refs.) - *J. Moody.*

No address.

2319 MYERS, RONALD E. Cystic brain alteration after incomplete placental abruption in monkey. *Archives of Neurology*, 21: 133-141, 1969.

The clinical and pathological findings in a case of severe brain damage in a monkey after an incomplete placental abruption are important in developing models of perinatal brain damage in the experimental animal. The monkey fetus was surgically delivered 14 days after expected delivery and appeared stillborn. Despite the nearly total destruction of the nervous system, somatic tissues had continued normal development. Post-mortem examination revealed destruction of all cell types of the nervous tissue with connective tissue replacement, necrosis of all tissue elements associated with widespread thrombosis of blood vessels, and destruction of neuronla oligodendroglial elements yet preservation of the macroglia and their stroma. Fetal developments *in utero* continued approximately 8 weeks after nervous system destruction, which indicates that the vital functions of the fetus are independent of neuronal control. (5 refs.) *S. Glinsky*.

Puerta de Tierra Station
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2320 MYERS, RONALD E. Brain pathology following fetal vascular occlusion: An experimental study. *Investigative Ophthalmology*, 8(1):41-50, 1969.

The effects upon brain development of ligation of the major vessels in the neck of monkeys during fetal development were studied. A total of 28 monkey fetuses were surgically removed from the uterus, subjected to bilateral ligation of the carotid artery and jugular vein in the neck, and returned to the uterus for completion of gestation and delivery. The resulting effects on brain morphology include the possibility of hydranencephaly when ligation occurs in early gestation, bilateral cerebral infarction along with tissue collapse and extensive tissue scar formation, cerebral dysgenesis affecting brain shape and convolutional patterning, little or no brain damage when ligation occurs later in gestation, and fetal death which occurred in 46% of the cases. Patterns of severe cerebral dysgenesis found in a proportion of children with severe MR may be due to anoxic-vascular insult, even though normally expected focal lesions are absent. (1 ref.) - *S. Glinsky*.

National Institutes of Health
San Juan, Puerto Rico

2321 BERENBERG, WILLIAM. Toward the prevention of neuromotor dysfunction. *Developmental Medicine and Child Neurology*, 11(2):137-141, 1969.

The President of the American Academy for Cerebral Palsy exhorts the Academy to make strenuous efforts in the prevention of brain damage and treatment of conditions causing neuromotor dysfunction. Areas needing improvement include prenatal diagnosis and operative procedures, reduction of head injuries in the general population, the use of brain scans to detect lesions, better surgery to inhibit associated increasing cerebral palsy incidence, better "high risk" programs and safer obstetrical narcosis agents. Other preventable danger factors are inappropriate thyroid therapy for pregnant mothers, LSD-induced chromosomal breakage, ingestion by children of various poisons, resuscitation techniques with an aftermath of brain damage, inhibition of infectious diseases especially rubella, and the identification of other viral and bacterial agents capable of damaging the brain *in utero*. The great progress made hitherto must spur all on to increased efforts in overcoming the many causes of cerebral palsy. (No refs.) - *S. Glinsky*.

No address.

2322 RIVERA, AMERICO, JR.; BRANN, ALFRED W., JR.; & MYERS, RONALD E. Brain glycogen of the recovering asphyxiated monkey newborn. *Experimental Neurology*, 26(2):309-315, 1970.

Quantitative chemical values were determined for the glycogen changes in the brains of monkeys during and after asphyxiation following birth. After anesthetization of the mothers and surgical delivery, 54 monkey fetuses were immediately totally asphyxiated for 14 to 16 minutes and then resuscitated by intermittent positive pressure ventilation. Brain glycogen levels were determined at delivery, after asphyxia, and at various time intervals after resuscitation and compared with controls. The asphyxia periods produced an average of 74% depletion of brain glycogen at their termination. At 12 hours following resuscitation, brain glycogen reached almost twice the control levels and returned to control levels only after 48 hours. The asphyxia episodes caused a reversible disturbance of carbohydrate metabolism in the central nervous system, as the temporary glycogen increase indicates. The brain glycogen levels of control animals exhibited only slight increases during the first 6 hours after birth. These increases were exhibited by all the animals and may be due either to the effects of barbiturates,

the birth process itself, or both. (20 refs.) *S. Glinsky.*

University of Mississippi Medical Center
Jackson, Mississippi 39216

2323 MYERS, RONALD E.; BEARD, RICHARD; & ADAMSONS, KARLIS. Brain swelling in the newborn rhesus monkey following prolonged partial asphyxia. *Neurology,* 19(10): 1012-1018, 1969.

Full-term rhesus monkeys were subjected to prolonged partial asphyxiation within the uterus to investigate subsequent brain swelling. Of the 10 monkeys used, only 3 failed to exhibit grossly apparent brain swelling. Brain examination revealed herniation of the tonsils and vernus of the cerebellum along with varying degrees of cerebral convolutional flattening. Hypoxia, hypercarbia, and mixed respiratory and metabolic acidosis accompanied the asphyxiation. The degree of swelling correlated best with the duration of hypoxia, hypercarbia, and pH below 7. The presently demonstrated pattern of swelling associated with a prolonged partial fetal asphyxiation departs from the normal model of acute asphyxia. This approach may provide more fruitful insights into the typical damage patterns in the human brain in the perinatal period. (5 refs.) - *S. Glinsky.*

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San Juan, Puerto Rico 00906

2324 MYERS, RONALD E. Atrophic cortical sclerosis associated with status marmoratus in a perinatally damaged monkey. *Neurology,* 19(12):1177-1188, 1969.

An asphyxiated newborn monkey exhibited severe cortical injury, rather than the expected brain stem or hemispheric damage. The full-term monkey fetus, which had suffered a moderate degree of *in utero* asphyctic compromise prior to delivery, was asphyxiated for 15 minutes and then resuscitated by positive pressure oxygen ventilation. Subsequent clinical examination confirmed moderate brain damage and diminished spontaneous use of the extremities. At 1 month of age the animal's lower extremities exhibited striking symmetrical flexion contractions, and at 6 months, he had continued lower extremity motor defects despite otherwise normal reactions. Postmortem examination of the brain after sacrifice at 6 months evidenced no brain stem pathology, but atrophic cortical sclerosis associated with white matter sclerosis and status marmoratus of the basal ganglia. This surprising pattern of pathology resembles the brain pathology of perinatal injury in humans. *In utero* asphyctic compromise may have an important etiological effect in human perinatal brain injury. (10 refs.) - *S. Glinsky.*

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2325 SOLOMON, G. E.; HILAL, S. K.; GOLD, A. P.; & CARTER, S. Natural history of acute hemiplegia of childhood. *Brain,* 93(1): 107-120, 1970.

An angiographic study of 86 children with onset of acute hemiplegia revealed 16 of 41 Ss, with unknown etiology, with occlusive vascular disease, thus permitting formulation of a new angiographic classification of the latter disease, and confirmed angiography as a useful diagnostic and prognostic adjunct. Two-thirds of those with occlusive vascular disease had residual hemiparesis and 1/3 developed epilepsy; retardation and behavior disorders were rare. The angiographic classification includes basal vascular occlusive disease with telangiectasia, basal vascular occlusive disease without telangiectasia, stenosis of the origin of the internal cartoid artery, distal branch occlusion over the convexity, and very small artery disease. In the Ss of unknown etiology where onset of the disease was generally under 2 years of age, seizures at the start of hemiplegia indicated poor prognosis. Of the 15 with multiple seizures, 14 were MR and 11 exhibited hyperkinetic behavior. (24 refs.) - *B. Berman.*

Columbia-Presbyterian Medical Center
New York, New York 10032

2326 MASLAND, RICHARD L. Spastic diplegia after short gestation. *Developmental Medicine and Child Neurology,* 12(2):127-129, 1970. (Editorial)

Studies of spastic diplegia (SD), a form of cerebral palsy (CP) that has increased in incidence, show it is not a prenatal developmental defect. Seven of 37 gestationally immature cesarean-section children developed SD, reflecting a higher occurrence than that among comparable, short-gestation spontaneously induced infants and thus ruling out a pre-existing diplegia. Rare in light-for-date babies, SD's occurrence apparently depends on degree of maturity at birth as none of 182 infants weighing less than 2.0 kg at birth, but with gestation of 36 weeks or longer, were affected at 1 year of age.

Theories of its pathophysiology suggest neonatal asphyxia, low hematocrit, damaged white-matter tracts in encephalomalacia, and venous hemorrhage or microinfarcts caused by asphyxia. The precise site of the lesion is also in question. Animal models and monitored studies of oxygen use in low-birth-weight infants would facilitate determination of the disease's etiology. (13 refs.) - *B. Berman.*

College of Physicians and Surgeons of Columbia University
New York, New York 10032

2327 PICKERING, LARRY K.; *HOGAN, GWENDOLYN R.; & GILBERT, ENID F. Aneurysm of the posterior inferior cerebellar artery: Rupture in a newborn. *American Journal of Diseases of Children*, 119(2):155-158, 1970.

A 1-month-old white male infant who died following the rupture of an aneurysm in the right posterior inferior cerebellar artery appears to be the youngest infant reported with this type of aneurysm. The infant had signs of a posterior fossa lesion from birth and had intracranial bleeding at 1-month of age. Autopsy revealed a ruptured right posterior inferior cerebellar artery aneurysm, and the vessel wall exhibited defects in the internal elastic membrane and in the media. Etiology of the aneurysm was unclear. Angiographic studies are recommended when an infant is seen prior to aneurysm rupture. (21 refs.) - *J. K. Wyatt.*

*Massachusetts General Hospital
Boston, Massachusetts 02114

2328 GORDON, MYRON; NISWANDER, KENNETH R.; BERENDES, HEINZ; & KANTOR, ANNE G. Fetal morbidity following potentially anoxigenic obstetric conditions: VII. Bronchial asthma. *American Journal of Obstetrics and Gynecology*, 106(3): 421-429, 1970.

Severe bronchial asthma is associated with a high risk of maternal and perinatal deaths and with neurologically abnormal infants. A cohort of 277 patients with bronchial asthma was selected from a group of 30,861 first study pregnancies. Of this cohort, 16 were classified as severe asthmatics. Follow-up examinations of the infants resulting from these pregnancies (perinatal and infant mortality, 1- and 5-minute Apgar scores, 8-month psychological and 12-month neurological tests) indicated a high frequency of asthma and severe respiratory diseases (7 and 2 times the expected rate, respectively). While Puerto Rican patients experienced a higher risk of asthma complicating the pregnancy, the effects of the illness were more severe for the Negro population. The 16 mothers with severe asthma had poor survival rates (4 deaths), and of 14 infants from this group, one-half either died near the time of birth or were diagnosed as neurologically abnormal after 1 year. (19 refs.) *M. S. Fish.*

New York Medical College
1249 Fifth Avenue
New York, New York 10029

2329 WALTER, CARL E.; & TEDESCHI, LUKE G. Spinal injury and neonatal death: Report of six cases. *American Journal of Obstetrics and Gynecology*, 106(2):272-278, 1970.

Unrecognized perinatal trauma may have caused intraspinal hemorrhage and injury to the spinal cord and brain-stem in 6 recent cases of neonatal death. Three of the infants (1 delivered by cesarean section) were premature and developed respiratory distress and/or depression at or shortly after birth; a fourth was delivered by cesarean section at term and, initially, was normal and healthy but developed respiratory distress one-half hour after delivery and died 48 hours later after these symptoms became more acute. A fifth apparently healthy well-developed term infant was found dead in his crib 3 days after birth. The sixth death also occurred in the crib at six weeks after birth; the infant had had exchange transfusions and had developed anemia after discharge but appeared to be quite healthy. Postmortem examination revealed, in all 6 infants, spinal cord and brain-stem injury and intrarachidian hemorrhage, death in each being ascribed to the latter. A history of injury of any of these infants, either during delivery or in the postnatal period, was absent. The extreme vulnerability of an infant to spinal cord injury (large head and weak neck) and the frequent difficulty in diagnosing neonatal spinal cord and brain-stem injury suggest that special precautions be observed in handling the infant during the perinatal period. (11 refs.) *M. S. Fish.*

Framingham Union Hospital
Framingham, Massachusetts

2330 GODFREY, S.; BOLTON, D. P. G.; & CROSS, K. W. Respiratory stimulants in treatment of perinatal asphyxia. *British Medical Journal*, 1(5694):475-477, 1970.

Experiments in asphyxiated fetal and neonatal rabbits indicate that analeptic drugs do not

significantly alter the course of asphyxia. The usual sequence of asphyxiation is hyperventilation followed by a period of primary apnea, a gasping phase, and a terminal secondary apnea. A neonate with primary apnea will recover spontaneously. Secondary apnea requires intermittent positive pressure ventilation, and the analeptics tested, ethamivan and taloximine, induced hypotension and so interfered with resuscitation. Such drugs have no place in the treatment of perinatal asphyxia. (5 refs.) - *E. L. Rowan.*

Institute of Diseases of the Chest
London, S.W. 3 England

2331 Transfusions suggested for neonatal disorders. *Journal of the American Medical Association,* 211(9):1459-1460, 1970.

Two infants with respiratory distress syndrome (RDS) have benefited from exchange transfusions with fresh adult blood. RDS results when the oxyhemoglobin dissociation curve shifts maladaptively to the left because of a drop in the level of 2,3 diphosphoglycerate (DPG) in the red cell. As DPG levels fall, an increased affinity of hemoglobin for oxygen delivery to the tissues results. Infants with RDS cannot meet this increased need for oxygen transport. Fresh adult red cells can provide added available oxygen without added myocardial stress by replacing fetal red cells in RDS infants. Both RDS infants receiving fresh adult blood improved. One immediately after transfusion; the other within a few hours. (No refs.) - *C. L. Pranitch.*

2332 ANGLE, CAROL R.; & BERING, EDGAR A., JR., eds. *Physical Trauma as an Etiological Agent in Mental Retardation,* Washington, D.C., Superintendent of Documents, U.S. Government Printing Office, 1970, 322p. $3.75.

A conference on the etiology of MR (covering epidemiology, perinatal studies, the developing brain, the premature, and postnatal trauma), held in October 1968 in Omaha, Nebraska, sought definition of existing knowledge on head injury as a cause of learning disabilities and formulation of fresh approaches. Early planning specified postnatal and perinatal trauma directly applied to the central nervous system as the 2 areas of concern, and defined physical trauma as embracing such assaults as X-radiation, laser radiation, and electric shock as well as the psychological effects of physical abuse in the absence of specific cerebral injury. Compressive-distortive head injury causes subarachnoid, subdural, and meningeal hemorrhages, dural tears, and spinal cord injuries, all of which are related to MR. Potential cerebral trauma probably affects, annually, 794,000 or 3% of the children under 6 years of age. Although hypoxia very likely precipitates the hemorrhagic infarction that leads to late sclerosis and cavitation, the contributing role of mechanical labor forces must be explicated, as must the mechanisms behind the sparing of function and the peculiar behavior in certain types of infant lesions, if rational training and education are to be developed. (418 refs.) -*B. Berman.*

CONTENTS: Introduction; Epidemiology; Perinatal Studies; Special Studies of the Developing Brain; The Premature; Postnatal Trauma.

2333 RUSSELL, JAMES K.; NELIGAN, GERALD A.; & MILLAR, DAVID, G. Obstetric trauma in Newcastle-upon-Tyne. In: Angle, Carol R.; & Bering, Edgar A., Jr., eds. *Physical Trauma as an Etiological Agent in Mental Retardation.* Washington, D.C., Superintendent of Documents, U.S. Government Printing Office, 1970, p. 101-104.

Studies of trauma in relation to fetal and neonatal death and to mental development showed that, of 14,693 infants born during 1960-62 in Newcastle-upon-Tyne, 296 were stillborn and 253 died within 4 weeks. Autopsies on 465 of these revealed trauma ("hemorrhage into and/or damage to intracranial structures or tissues elsewhere occurring during labor or delivery due to mechanical injury") as a direct cause of death in 32 (6.9%) and indirect in 14 cases. Study of the relationship between the mortality of certain complications and their effect on IQ showed that the survivors of breech delivery, normally associated with high mortality, had significantly lower IQs than those surviving forceps, spontaneous vertex, and cesarean section delivery; however, there was no increased incidence of mental or physical defects in breech deliveries. Breech delivery resulted in lowest mortality in the primigravida and highest in the grand multipara. IQ was highest in primigravida offspring and lowest in grand multipara; this fact reflects the inverse relationship between perinatal mortality and IQ. Trauma of delivery was held responsible for IQ deficits. (3 refs.) -*B. Berman.*

2334 WILLERMAN, LEE. Maternal pelvic size and neuropsychological outcome. In: Angle, Carol R.; & Bering, Edgar A., Jr., eds. *Physical Trauma as an Etiological Agent in Mental Retardation.* Washington,

D.C., Superintendent of Documents, U.S. Government Printing Office, 1970, p. 109-112.

Two studies explored the influence of pelvic size (in particular, the bi-ischial diameter --the transverse measure of the pelvic outlet) on neuropsychological effects in children. In the first study, 212 children (all vertex deliveries in an occiput-anterior position) were given Wechsler and Tactile Finger Recognition tests. The results demonstrated a trend that mean verbal IQs may be a function of maternal bi-ischial diameter and forceps application for children of small-pelvis mothers tended to have lower verbal IQs than children of mothers with large pelvis. The second study (3,859 children of mothers with inadequate pelvic inlet and 3,572 controls) showed no significant IQ (Stanford-Binet) difference related to pelvic inlet, but some noteworthy differences related to pelvic outlet. (No refs.) -*B. Berman.*

2335 BERING, EDGAR A., JR. Physical trauma as a cause of mental retardation. In: **Angle, Carol R.; & Bering, Edgar, A., Jr.**, eds. *Physical Trauma as an Etiological Agent in Mental Retardation.* Washington, D.C., Superintendent of Documents, U.S. Government Printing Office, 1970, p. 3-5.

The fourth of 7 conferences recommended by the President's Panel on Mental Retardation in 1962 dealt with physical trauma as a cause of MR and sought to assess the problems of intellectual impairment from physical impact and to control this aspect of MR. Conference plans included assembling scientists and crystallizing issues. Major areas of concern stemming from the first planning meeting included the need to define MR (probably in terms of burden to society) and include in the definition etiologic aspects of physical trauma in altering mental development, to consider the prenatal, perinatal, and postnatal periods (periods of the most active brain maturation up to the first 2 years of life), to draw conclusions from testing and psychological parameters, and to distinguish between physical trauma and central nervous system hypoxia or anoxia. (No refs.) -*B. Berman.*

2336 TEUBER, HANS-LUKAS. Mental retardation after early trauma to the brain: Some issues in search of facts. In: Angle, Carol R.; & Bering, Edgar A., Jr., eds. *Physical Trauma as an Etiological Agent in Mental Retardation.* Washington, D.C., Superintendent of Documents, U.S. Government Printing Office, 1970. p. 7-28.

Prolonged study of behavioral differences, followed by neuropathological reconstruction (in large numbers of cases) of cerebral lesions are needed to resolve questions of how early brain trauma affects MR. Questions include: What are the aspects of pathophysiology in early trauma? Is it less disabling than in later trauma? and What kinds of behavioral change derive from early injury? To ascertain answers and define which subsets of early-trauma children experience consequential MR, Kinnard pursued experimental obstetrics with rhesus monkeys and compared the effects of removing the motor-cortex from the neonate and older animals. Covering all cortical areas, she extended her work to subcortical areas and to the role of plasticity. Although some functions may be unaffected by early lesions, certain aspects of behavior may suffer as much or even more than if the lesions occurred later in life. Support, although fragmentary, comes from research on: congenital absence of various commissures; early lesions in the language areas; early hemispheric specialization; hyperesthesia; and the effects of early lesions on perceptual, sensory, tactical, and spatial orientation tasks. The different effects observed in early and late lesions are the result of cerebral organizational differences. (84 refs.) -*B. Berman.*

2337 MEYER, ROGER J. The epidemiology of head trauma in childhood--Introductory comments. In: Angle, Carol R.; & Bering, Edgar A., Jr., eds. *Physical Trauma as an Etiological Agent in Mental Retardation.* Washington, D.C., Superintendent of Documents, U.S. Government Printing Office, 1970, p. 31-33.

Restoring to health a child with head injury requires understanding head-injury epidemiology--a veritable network of associations varying with age, sex, social and class structure, physiologic state, and human and physical surroundings including the supervision of parents, auto accidents, and group interactions. The child with postnatal injury may be studied through prospective analysis (following a defined population over a time period) and retrospective analysis (studying hospitalized patients, school children, or mortality samples). Individual susceptibility varies widely, and there are both adaptability and varied sequelae. Further analysis of variables will yield preventive measures and reduced incidence and severity of injuries. (No refs.) -*B. Berman.*

2338 MALAMUD, NATHAN. Trauma and mental retardation. In: Angle, Carol R.; & Bering, Edgar A., Jr., eds. *Physical Trauma as an Etiological Agent in Mental Retardation.* Washington, D.C., Superintendent of Documents, U.S. Government Printing Office, 1970, p. 35-51.

Perinatal trauma (an important cause of MR), which includes both mechanical effects and aspects of abnormal parturition linked with many circulatory and biochemical changes, manifests chronic lesions in 3 patterns: sclerosis and/or cavitation of the cerebral white matter (predominantly in the dorsal parts of the hemisphere, involving the centrum semiovale up to the cortex); status marmoratus (hypermyelination and basal ganglia changes chiefly in the putamen, caudate nucleus, and thalamus); and sclerotic microgyria. All 3 patterns show a close causal relationship. In 248 cases, 10% showed sequelae of perinatal trauma; in 198, birth history correlated with pathologic findings. Common abnormalities of labor and delivery included: difficult labor (73), instrumental delivery (56), abnormal births (14), abnormal presentation (22), cord abnormality (15), and maternal illness, such as toxemia (22). Of great significance was a high incidence of fetal distress. Theories on pathogenesis in birth trauma embrace asphyxia neonatorum, intrauterine and atmospheric pressure, neural tissue immaturity, and incisural herniation. Postnatal trauma is an uncommon cause of MR: in 2357 cases, only 8 instances (0.34%) appeared. (28 refs.) *-B. Berman.*

2339 ADAMS, RAYMOND D.; & SALAM, MARIA Z. General aspects of the pathology of cranial trauma in infants and children. In: Angle, Carol R.; & Bering, Edgar A., Jr., eds. *Physical Trauma as an Etiological Agent in Mental Retardation.* Washington, D.C., Superintendent of Documents, U.S. Government Printing Office, 1970, p. 53-65.

To what extent does physical trauma cause cranial lesions, and will its control and prevention reduce MR occurrence? A statistical survey of cranial traumatism must define the connection between early and late sequelae of central nervous system pathology to such traumatism. Cranial trauma displays 3 major types of injuries: penetrating, blunt acceleration-deceleration, and compressive-distortive. The immediate effects of cranial deformations include: subarachnoid, intracerebral, and intraventricular hemorrhages; dural tears, leucomalacia; and tearing and neck-vessel occlusions. All early pathogenic conditions have been ascribed to "birth trauma," but it is not possible to separate trauma from circulatory disturbance. Lesions attributed to birth trauma include bilateral or unilateral encephalomalacia with necrosis of cortex and white matter, multiple cystic leukoencephalopathy, mantle sclerosis, status marmoratus, and disseminated sclerosis in temporal lobes. Research must explicate the physical forces which impinge on the parturient cranium and effect of such forces on cerebral circulation and oxygenation. (16 refs.) *-B. Berman.*

2340 YAKOVLEV, PAUL I.; & ROSALES, REMEDIOS K. Distribution of the terminal hemorrhages in the brain wall in stillborn premature and nonviable neonates. In: Angle, Carol R.; & Bering, Edgar A., Jr., eds. *Physical Trauma as an Etiological Agent in Mental Retardation.* Washington, D.C., Superintendent of Documents, U.S. Government Printing Office, 1970, p. 67-78.

Two architectonic brain areas--the deep zone (centrum semiovale) and superficial zone (corona radiata), which are recognizable after the third lunar month in the cerebral hemispheric wall--give the pathologist an important reference for studying perinatal cerebral pathology. The zones differ not only in histoarchitecture but also in vascularization and blood circulation hemodynamics. In 226 autopsy specimens, whole-brain sections yielded a classification (gross, small, and simple) of hemorrhagic extravasates in the brain wall. No specimens showed dural tears, sinus thromboses, or primary subarachnoid hemorrhage. All stillborn premature and nonviable neonates displayed terminal hemorrhages in the brain wall. Occurring almost entirely in the matrix layer and centrum semiovale in stillborn fetuses under 8 months, they are unusual in the corona radiata and cortical plate. After the eighth month, vulnerability decreases in the deep zone but increases in the superficial zone. Attributed to circulatory failure, the hemorrhages are of little interest to pathologist or clinician; however, they have meaning as indices of the vulnerability of the zones to circulatory failure. (10 refs.) *-B. Berman.*

2341 KEMPER, THOMAS L. Postmortem neuropathologic findings in patients with "birth injury." In: Angle, Carol R.; & Bering, Edgar A., Jr., eds. *Physical Trauma as an Etiological Agent in Mental Retardation.* Washington, D.C., Superintendent of Documents, U.S. Government Printing Office, 1970, p. 79-86.

Histopathological findings in 33 autopsies (CAs 4 mos to 40 yrs) were correlated with clinical histories and categorized into 6 groups: malformations (4), kernicterus (5),



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status marmoratus (6), primary infarction of thalamus (3), cerebral infarction without status marmoratus (8), and miscellaneous (7). Analysis revealed that the clinical diagnosis of "birth injury" was ambiguous and inaccurate. The obvious interpretation is that the lesions resulted from hypoxia and blood-flow impairment and not from trauma--neuropathologists support this view. No lesions apparently were residual matrix hemorrhages or terminal vein thromboses. Two subdural-membrane cases furnished no evidence of trauma. In only 2 cases were there any signs of premature birth. (No refs.) -*B. Berman.*

2342 CAVENESS, WILLIAM. Epidemiologic studies of head injury. In: Angle, Carol R.; & Bering, Edgar A., Jr., eds. *Physical Trauma as an Etiological Agent in Mental Retardation.* Washington, D.C., Superintendent of Documents, U.S. Government Printing Office, 1970, p. 87-90.

A survey of head injuries in 134,000 persons from July 1966 to June 1967 showed that 26% of injuries was sustained by children under 6 years of age. Annual incidence of significant cranial injuries among infants and young children is 3.3% of the population under 6 years of age. Epidemiological analyses of these injuries have shifted from descriptive accounts of accidental injuries to etiological categorization. There is as yet no precise definition of trauma in MR etiology; postnatal trauma as an etiological factor finds only limited attention in the literature. (Of 1,137 admissions to a training school, only 1.4% was attributed to postnatal trauma.) Since trauma is obviously occurring and will continue to occur at a considerable rate in children, studies are needed to determine accurately the contribution of postnatal trauma to MR. (14 refs.) - *B. Berman.*

2343 CLIFFORD, STEWART H.; & DRORBAUGH, JAMES E. Obstetric history of grossly retarded children in the Boston sample of the Collaborative Study. In: Angle, Carol R.: & Edgar A., Jr., eds. *Physical Trauma as an Etiological Agent in Mental Retardation.* Washington, D.C., Superintendent of Documents, U.S. Government Printing Office, 1970, p. 93-99.

Of the 14,076 cases who were subjected to psychological tests (4-year level), 4.27% had IQs below 70. At the time of discharge from nursery, a pediatrician decided whether the infant's condition was due to anoxia or trauma. Of 97 Ss with perinatal trauma, 17.5% had IQs below 80. Despite the fact that 97.4% of all births was not considered complicated by anoxia or trauma, the latter did show increased incidence in severe MR, incidence of which in the entire group was 7.57/1000 (5.59/1000 for full-terms; 35.62/1000 for prematures). Trauma incidence was 14.01/1000 for retardates compared with 6.9/1000 for the entire group. In cases where trauma contributed significantly to retardation or severe neurological impairment, anoxia, genetic abnormality, or hyperbilirubinemia apparently presented associated complications. (No refs.) - *B. Berman.*

2344 WILLERMAN, LEE. Fetal head position during delivery, and intelligence. In: Angle, Carol R.; & Bering, Edgar A., Jr., eds. *Physical Trauma as an Etiological Agent in Mental Retardation.* Washington, D.C., Superintendent of Documents, U.S. Government Printing Office, 1970, p. 105-108.

Two studies of intellectual differences in children born from occipital left (OL) or occipital right (OR) vertex positions suggested differential impairments linked with presumptive neonatal cerebral lesions. Apparently, even at birth, there is lateralized neuropsychologic differentiation sufficient to depress intellectual capacity. Depressed 4-year IQ (Stanford-Binet) occurred with presumptive damage in the neonatal left hemisphere; this fact reflects the left hemisphere's greater influence on verbal functions. In the first study 212 children tested (Wechsler scale) at ages 5-9.0 years showed mean performance IQ significantly higher ($p=.01$) than verbal IQ among ORs; among OLs, the IQs did not differ significantly. The second study (213 children) showed no association between mid-forceps delivery and lower IQs. (8 refs.) - *B. Berman.*

2345 ROSENBAUM, ARTHUR L. Neuropsychologic outcome of children born via the occiput posterior position. In: Angle, Carol R.; & Bering, Edgar A., Jr., eds. *Physical Trauma as an Etiological Agent in Mental Retardation.* Washington, D.C., Superintendent of Documents, U.S. Government Printing Office, 1970, p. 113-116.

To determine the neuropsychological impairments associated with occiput posterior (OP) or occiput anterior (OA) birth position, 441 children (with detailed obstetrical, neurological, and psychological evaluations) with birth position records were given the Bayley Scale of Infant Development at 8 months and the Stanford-Binet Intelligence Test at 4 years. The 221 OP children displayed lower IQs than did the 220 OA children. There were no signs of differences for race, sex, and socioeconomic status, but OAs showed more de-

layed postural control and plantar extensor response at age 1 year. (7 refs.) - *B. Berman.*

2346 AUSTT, E. GARCIA; RUGGIA, R.; & CALDEYRO-BARCIA, ROBERTO. Effects of intrapartum uterine contractions on the EEG of the human fetus. In: Angle, Carol R.; & Bering, Edgar A., Jr., eds. *Physical Trauma as an Etiological Agent in Mental Retardation.* Washington, D.C., Superintendent of Documents, U.S. Government Printing Office, 1970, p. 117-124.

In advanced labor, uterine contractions causing intrauterine pressure to rise higher than 40-55 mm Hg change the fetal EEG pattern. Fetal EEG was recorded after membrane rupture with silver electrodes inserted in the fetal head. A thin polyethylene catheter in the amniotic sac recorded uterine contractions, and fetal heart rate was obtained by a cardiotachometer triggered by the EEG R wave. The most frequently noted EEG change was the appearance of high-voltage slow waves which coincided with the contraction peak. These changes very likely occurred when the fetal head was very strongly compressed by the contracting uterus, causing transient ischemia. There is as yet no evidence that transient periods of brain ischemia cause permanent brain damage. (11 refs.) - *B. Berman.*

2347 ARAMBURU, G.; ALTHABE, O.; & CALDEYRO-BARCIA, ROBERTO. Obstetrical factors influencing intrapartum compression of the fetal head and the incidence of dips in fetal heart rate. In: Angle, Carol R.; & Bering, Edgar A., Jr., eds. *Physical Trauma as an Etiological Agent in Mental Retardation.* Washington, D.C., Superintendent of Documents, U.S. Government Printing Office, 1970, p. 125-132.

Amniotic pressure, fetal heart rate (FHR) cervical dilatation, and fetal-head position were monitored in 26 pregnant women in labor. Results showed that membrane rupture greatly facilitated the production of FHR dips by increasing the number of uterine contractions. After membrane rupture, the amniotic fluid no longer surrounds the fetal head; this increases the pressure of uterine contractions on the head and reduces brain-blood flow which results in ischemia, hypoxia, and hypercapnia, all causes of FHR dip. Cerebral ischemia may also cause EEG changes observed at the peak of uterine contractions. Cervical dilatation, the nuchal cord, and fetal-head station also are factors in FHR dips, but the chief cause is membrane rupture. (8 refs.) *B. Berman.*

2348 SCHWARCZ, R. L.; STRADA-SAENZ, G.; ALTHABE, O.; FERNANDEZ-FUNES, J.; ALVAREZ, L. O.; & CALDEYRO-BARCIA, ROBERTO. Compression received by the head of the human fetus during labor. In: Angle, Carol R.; & Bering, Edgar A., Jr., eds. *Physical Trauma as an Etiological Agent in Mental Retardation.* Washington, D.C., Superintendent of Documents, U.S. Government Printing Office, 1970, p. 133-143.

In 18 normal-term pregnant women with vertex presentation, measurement of fetal-head compression during uterine contraction showed cephalic pressure rising almost simultaneously with amniotic pressure. Fetal-head pressure was recorded by 3 flat receptors between the head and the uterine cervix outside the ovular membranes; amniotic pressure was recorded by an inserted catheter. Cephalic receptor and amniotic pressures demonstrated a linear relation and a new linear correlation resulted when receptors changed position in relation to the head; the receptor at the head's equator recorded the highest pressure. Results agreed with the hypothesis that uterine contractions cause a transient drop in fetal heart rate, reflecting the increased vagal tone associated with hypoxia and central nervous system hypercapnia. Observed fetal EEG changes were attributed to transient cerebral ischemia. (17 refs.) - *B. Berman.*

2349 CHURCHILL, JOHN A. Newborn cerebral trauma. In: Angle, Carol R.; & Bering, Edgar A., Jr., eds. *Physical Trauma as an Etiological Agent in Mental Retardation.* Washington, D.C., Superintendent of Documents, U.S. Government Printing Office, 1970, p. 145-148.

Mechanical trauma suffered by the brain during birth can result in intrapartum and neonatal death. In one study, 6.2% of autopsied neonates showed traumatic brain lesions. Another study revealed perinatal trauma in more than 10% of infants; although only a small fraction suffered consequent serious neurological deficit. Evidence does suggest that later intellectual impairment stems from compression, distortion, and injury of the fetal brain during pelvic-canal transit. Also, fetal heart rate is influenced by the force of uterine contractions. However, knowledge is still inadequate on the effects of intrapartum trauma on central nervous system dysfunction--on whether differential cerebral impairments as related to birth hold true for higher mental activity. (22 refs.) - *B. Berman.*

2350 HON, EDWARD H. Trauma of labor. In: Angle, Carol R.; & Bering, Edgar A., Jr., eds. *Physical Trauma as an Etiological Agent in Mental Retardation.* Washington, D. C., Superintendent of Documents, U.S. Government Printing Office, 1970, p. 151-161; discussion, 161-165.

Each uterine contraction represents a recurring stress for the fetus; thus, labor itself has etiological significance in perinatal morbidity and mortality. Uterine contractions are associated with changes in uterine blood flow and, by lowering the intervillous flow to some extent, decrease maternal-fetal exchange. Where the fetal reserve margin is low, this repeated stress may affect fetal well-being. Another source of obstetrical concern, the fetal heart rate (FHR) variable deceleration, can generally be eased simply by changing the mother's position. The meaning (harmless or foreboding) of FHR patterns is difficult to assess, but it appears that a late deceleration pattern is ominous and frequently linked with fetal damage or death. Important, also, are the momentary interval variations between successive heart beats, since they reflect the integrity of the nervous mechanisms controlling the heart. (19 refs.) - *B. Berman.*

2351 YATES, PETER O. Trauma to neck vessels leading to cerebral damage. In: Angle, Carol R.; & Bering, Edgar A., Jr., eds. *Physical Trauma as an Etiological Agent in Mental Retardation.* Washington, D.C., Superintendent of Documents, U.S. Government Printing Office, 1970, p. 167-173; discussion, 173-175.

In 250 perinatal deaths, there was general trauma to the cervical spine in more than one-fourth of the cases. Whether birth is by breech or head presentation, the neck is the part often stretched or twisted during delivery and, consequently, results in cord damage. Since infarction may damage a brain area that has little or no function at birth, the neurological deficit will appear only later in life, and death at 6 or 7 years of age may be due to maldevelopment rather than arterial ischemia. When the cause is arterial, the ischemia may show as cardiorespiratory failure or lack of temperature control; later there may appear cranial nerve palsy, such as squints, inner-ear damage, hyperkinesis, or audiovestibular nuclei damage in the brain. (1 ref.) - *B. Berman.*

2352 SUMI, S. MARK. Reaction of the immature brain to injury. In: Angle, Carol R.; & Bering, Edgar A., Jr., eds. *Physical Trauma as an Etiological Agent in Mental Retardation.* Washington, D.C., Superintendent of Documents, U.S. Government Printing Office, 1970, p.177-189.

Stab injuries produced in newborn and older rat brains clarified differences in brain reaction to injury. The chief aspects of immature-brain reactions are speedy mobilization and early disappearance of macrophages plus the rapid dissolution and complete resorption of necrotic tissue with healing by the formation of a smooth-surfaced cystic defect with little scarring. Necrotic-tissue effect may be due to the young brain's water content and larger, more distensible extracellular space, which facilitates phagocytosis by the greater ease in inward and outward macrophase movement. Scarcity of astrocytes in immature brain may explain its extracellular edema-fluid distribution and the absence of glial scarring after injury. (21 refs.) - *B. Berman.*

2353 HICKS, SAMUEL P.; & D'AMATO, CONSTANCE J. Effects of removal of parts of the early infant rat's brain on its morphogenesis and functional development. In: Angle, Carol R.; & Bering, Edgar A., Jr., eds. *Physical Trauma as an Etiological Agent in Mental Retardation.* Washington, D.C., Superintendent of Documents, U.S. Government Printing Office, 1970, p. 191-196.

In animals and man, a young organism sustains neural changes and deficits and compensates functionally in ways in which an older organism cannot. Unilateral or bilateral removal of cortex in young rats produced no impairment of gait (as there would be in adults). Removal of the somaesthetic cortex did not affect hopping, stepping, or visual placing. In the infant rat, an unidentified mechanism for lateral tactile placing serves both sides of the body; this is later usurped by a cortical-thalamic mechanism. Hemispherectomized rats allow their feet to slip off the edge of a running track during the first few weeks when starting to run, but this soon returns to normal. Cerebellectomized 1- to 5-day olds will show unsteadiness at 14 to 17 days, but they do learn to walk and run. (No refs.) *B. Berman.*

2354 KLING, ARTHUR. The effect of cerebral ablation in infant monkeys on motor and cognitive function. In: Angle, Carol R.; & Bering, Edgar A., Jr., eds. *Physical Trauma as an Etiological Agent in Mental Retardation.* Washington, D.C., Superintendent of Documents, U.S. Government Printing Office, 1970, p. 197-205.

A review of experimental studies on the relation of cognitive function to somato-motor

development reveals that the most consistent cognitive disturbance occurs following localized cortical lesion subsequent to bilateral ablation of frontal granular cortex: animals perform adequately on various visual discriminations, but cannot master delayed response or alternation. In addition, they are hyperactive and distractable, especially during heightened emotion. In one series of tests, monkeys with early ablation of the frontal cortex revealed no differences in color discrimination or delayed alternation; however, on delayed response, there was a definite difference between early and late lesions. Caudate-nucleus lesions also resulted in hyperactivity and in some disturbance of delayed response. In 7 cases of frontal-caudate lesion, all revealed inadequate sucking and grasping reflexes, poor temperature control, and minor motor paresis; none could be reared maternally. Additional work is needed to discover the capacity of limited cortical areas to support a number of sensorimotor functions and some plasticity, and to understand the neural mechanisms seen in sparing of function. (3 refs.) - *B. Berman.*

2355 CARLSON, C. B. Premature infant: Intracranial hemorrhage and mental retardation. In: Angle, Carol R.; & Bering, Edgar A., Jr., eds. *Physical Trauma as an Etiological Agent in Mental Retardation.* Washington, D.C., Superintendent of Documents, U.S. Government Printing Office, 1970, p. 209-211.

It is estimated that 1% of all live births shows intracranial hemorrhage, but still undetermined is the relation of such hemorrhage to brain damage and MR. In various surveys, 10 to 25% of survivors of presumed perinatal hemorrhage shows evidence of brain damage. A large problem in determining the significance of neonatal intracranial hemorrhage (all venous and of the subdural or leptomeningeal type) as a cause of MR in later life is the difficulty of establishing a diagnosis since lumbar puncture and cerebrospinal fluid analysis are essential to diagnostic confirmation. (11 refs.) - *B. Berman.*

2356 TOWBIN, ABRAHAM. Central nervous system damage in the premature related to the occurrence of mental retardation. In: Angle, Carol R.; & Bering, Edgar A., Jr., eds. *Physical Trauma as an Etiological Agent in Mental Retardation.* Washington, D.C., Superintendent of Documents, U.S. Government Printing Office, 1970, p. 213-236; discussion, 236-239.

Seventeen years of study have demonstrated that the most significant neonatal nervous-system contributions to organic MR come from deep brain lesions in the fetus and premature newborn. This brain damage, incurred for the most part long before birth, is of hypoxic and traumatic origin, reflecting systemic processes and venous infarction, and shows 4 forms of central nervous system damage: subdural hemorrhage from dural-venous laceration, spinal-cord and brain-stem injury (at birth), deep cerebral venous infarction (in the premature), and cortical cerebral venous infarction (at term). Some degree of neural damage (hypoxic or mechanical) is inescapable during birth-canal passage and separation at birth; for prematures, the hazards are greater, as reflected in their high MR incidence. The time when cerebral damage occurred can be determined by correlating cerebral damage patterns in neonates with MR and cerebral palsy damage patterns. (43 refs.) - *B. Berman.*

2357 DESMOND, MURDINA M.; & RUDOLPH, ARNOLD J. The clinical evaluation of the low-birth-weight infant with regard to head trauma. In: Angle, Carol R.; & Bering, Edgar A., Jr., eds. *Physical Trauma as an Etiological Agent in Mental Retardation.* Washington, D.C., Superintendent of Documents, U.S. Government Printing Office, 1970, p. 241-249.

Effective correlation of birth trauma and nursery symptoms requires: a thorough review of gestation, labor, and delivery; differentiation between anatomic residue and functional changes; and physical examination related to the infant's chronology and transition sequence. The morbidity of labor and delivery must be distinguished from that of the nursery. To determine the presence of trauma requires the studying of morbidity following a traumatic experience (breech delivery) or in association with some tissue injury (ecchymosis). In a study of labor and delivery, 1 in 3 infants born alive (32% of births) showed some morbidity, impaired heart time, poor bowel activity, and abnormal respiration. These reflected neural dysfunction stemming from adverse intrauterine experience. Delivery room morbidity was higher in low-birth-weight neonates. (26 refs.) - *B. Berman.*

2358 ENGEL, RUDOLPH. EEG in prematures and subsequent development. In: Angle, Carol R.; & Bering, Edgar A., Jr., eds. *Physical Trauma as an Etiological Agent in Mental Retardation.* Washington, D.C., Superintendent of Documents, U.S. Government Printing Office, 1970, p. 251-260.

EEGs provide an effective method of evaluating the developmental state and functional maturation of prematures. At 9 months, the alternating tracing can be obtained from all

infants. Examination of 2,000 neonates confirmed Ellington's observation of correlation between maturational pattern changes and latency measurements of evoked responses in newborns and showed that the connection between newborn photic latency and measures of subsequent development is as good a predictive measure as is gestational age. In 564 prematures, 10% of EEGs showed at least 1 abnormality--a larger proportion than can be expected in prospective evaluations of full-term newborns. (14 refs.) - *B. Berman.*

2359 OSKI, FRANK A. Hematologic factors in the premature infant and mental retardation. In: Angle, Carol R.; & Bering, Edgar A., Jr., eds. *Physical Trauma as an Etiological Agent in Mental Retardation.* Washington, D.C., Superintendent of Documents, U.S. Government Printing Office, 1970. p. 261-263.

Premature infants may be more susceptible to hemorrhage after trauma and, therefore, experience greater risk for MR. Some prematures show considerable platelet reduction and changes in the coagulation mechanism, with abnormal bleeding; the latter may reflect, also, capillary fragility or anoxia from trauma. Questions remaining are whether much of this comes from liver immaturity, or do birth trauma, anoxia, shock, or sepsis start intravascular coagulation that causes depletion of coagulation factors and eventual hemorrhage. Also unknown is what percentage of hemorrhaging infants die, have residual impairment, or recover completely. (10 refs.) - *B. Berman.*

2360 DODGE, PHILIP R. Summary and future plans. In: Angle, Carol R.; & Bering, Edgar A., Jr., eds. *Physical Trauma as an Etiological Agent in Mental Retardation.* Washington, D.C., Superintendent of Documents, U.S. Government Printing Office, 1970, p. 297-300.

Physical trauma as a cause of MR in children (3 percent of the population under age 6 are at risk) involves primarily postnatal injury and perinatal trauma. Postnatal trauma and MR are unquestionably associated; severely impaired who survive may be left with irreparable brain damage. It is important to consider the course of trauma recovery in the individual patient and whether altered consciousness is really due to the concussive force. Problems of flash edema and resuscitation methods merit study. Society must assume responsibility for prevention of head injuries. Perinatal trauma is more serious in respect to nervous-system damage with permanent sequelae (MR, CP, epilepsy, and others): 4% of neonates will develop neurologic difficulties. The 3 major pathologies include laminar necrosis in cortical cells, status marmoratus, and necrosis followed by gliosis of cerebral white matter. Pathogenesis of these groups involves hypoxemia, vascular stasis or thrombosis, infarction, and infarct necrosis. At the center of the perinatal problem are obstetric factors. (No refs.) - *B. Berman.*

2361 APTHORP, JAMES S. The battered child. In: Angle, Carol R.; & Bering, Edgar A., Jr., eds. *Physical Trauma as an Etiological Agent in Mental Retardation.* Washington, D.C., Superintendent of Documents, U.S. Government Printing Office, 1970, p. 283-285.

In 263 cases of trauma inflicted on children, there was a significant incidence of physical injury (major head trauma in 79; minor head trauma in 59) causing permanent neurologic damage or MR. Medical findings were correlated with the child's history, age, and IQ. For most of these children, no adequate behavioral measures were available. (No refs.) *B. Berman.*

2362 BLACK, PERRY; BLUMER, DIETRICH; WELLNER, ALFRED; JEFFRIES, J. J.; & WALKER, A. EARL. An interdisciplinary prospective study of head trauma in children. In: Angle, Carol R.; & Bering, Edgar A., Jr., eds. *Physical Trauma as an Etiological Agent in Mental Retardation.* Washington, D.C., Superintendent of Documents, U.S. Government Printing Office, 1970, p. 287-290.

Preliminary results on 107 children (the majority with CAs 2 to 10 yrs) in a longitudinal study of head-injury effects revealed that 52% with a neurologic deficit exhibited hyperkinetic behavior 1 year later--a significant difference from neurologically normal controls (only 25% hyperkinetic). Thirty-four percent manifested some neurologic dysfunction (motor or cranial-nerve); 36% only coma. Most residual abnormalities were minor. Normal pre-injury kinesis correlated with occurrence of post-traumatic hyperkinesis; initial abnormal EEG was predictive of more behavioral disturbance. IQs for initially conscious or unconscious children showed no significant difference. (No refs.) - *B. Berman.*

2363 CLAIREAUX, A. E. The effects of chronic hypoxia on the infantile brain. *Developmental Medicine and Child Neurology,* 12(1):101-102, 1970. (Annotation)

Brain lesions in infants with respiratory distress syndrome and treated with prolonged artificial ventilation have been attributed

to chronic cerebral hypoxia, although toxcity due to the oxygen can not be excluded. Ss were 5 infants with respiratory distress, surviving from 50 days to 10 months, and treated with 70-94% oxygen for 7 weeks to 6 1/2 months. All were in the respirator for 2 weeks to 48 days. Neuropathological examination at autopsy showed vasoproliferative changes in the white matter of the cerebrum, in the white matter and dentate nuclei of the cerebellum, and in the brain stem. Fibrillary gliosis appeared in the medullary pons, midbrain, and spinal cord. Pulmonary fibrosis was also present and was believed to have contributed to the cerebral hypoxia. (7 refs.) -*M. S. Fish.*

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2364 ABRAHAMS, PRUDENCE; & BURKITT, B. F. E. Hiatus hernia and gastro-oesophageal reflux in children and adolescents with cerebral palsy. *Australian Paediatric Journal,* 6(1):41-46, 1970.

Extensor spasm combined with incoordination of swallowing and backward curvation of the spine may contribute to the high incidence of hiatus hernia and gastroesophageal reflux which has been observed in children with cerebral palsy (CP). The Ss were 79 CP children of varying ages divided into group 1 (16 patients who had gastrointestinal symptoms) and group 2 (63 Ss without the symptoms). All were examined for the type of CP and studied fluoroscopically (barium ingestion) for evidence of reflux or hernia. Findings for groups 1 and 2, respectively, were: both hernia and reflux, 8 (50%) and 5 (8%); reflux, only, 4 (25%) and 12 (19%); and normal, 4 (25%) and 46 (73%). Of the 16 Ss with reflux only, 9 were under 6 years of age, suggesting the possibility that the reflux is the precursor of the hernia. Hemoglobin levels were less than 10 g% for 6 group 1 Ss and for 1 group 2 S. The presence of abnormal esophageal findings appeared to have no correlation with sex or with the type of CP; however, in 29 Ss with abnormal radiographs, 17 showed incoordination when swallowing, 18 had kyphoscoliosis, and 20 exhibited extensor spasm. (33 refs.) - *M. S. Fish.*

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## *Disease or disorders of metabolism, growth, or nutrition*

2365 MOSER, HUGO W. A new inborn lysosomal disease. *New England Journal of Medicine,* 282(6):337-338, 1970. (Editorial)

Nadler and Egan describe a new disorder with clinical features similar to certain of the aminoacidurias including a progressive neuromuscular disorder and characterized by a deficiency of lysosomal acid phosphatase. The carrier state of this disorder now is diagnostically determinable by means of a new approach which compares the activity of the enzyme in the resting state with that produced by 56-hour stimulation with phytohemagglutinin. This stimulation normally increases lysomal enzyme activity but fails to stimulate lymphocyte acid phosphatase of the obligate heterozygote. (6 refs.) - *M. S. Fish.*

No address

2366 HARRIS, HARRY. Genetical theory and the "inborn errors of metabolism." *British Medical Journal,* 1(5692):321-327, 1970.

Garrod, who studied alkaptonuria in the early 1900s, delineated a new group of genetically related diseases which he characterized as inborn errors of metabolism. More than 60 of these types of disorders, including alkaptonuria, are now known to be related to the deficiency of specific enzymes; this deficiency, in turn, is caused by abnormal genes which can affect the enzymes in a variety of ways including complete or partial deficiency of the enzyme and altered enzyme structure and activity. The heterogeneous nature of the clinical manifestations of a number of these diseases implies that genetic heterogeneity may exist, and recognition of this possibility is important in the diagnosis

and treatment of the disorders. This active field of research likely will maintain its momentum and continue to contribute widely useful information to biomedical science. (25 refs.) - *M. S. Fish.*

Galton Laboratory, University College
Wolfson House, Stephenson Way
London N.W.1, England

2367 SCRIVER, CHARLES R. Phenylketonuria: The glutamine hypothesis. *New England Journal of Medicine,* 282(14):808-809, 1970. (Editorial)

Chronic glutamine insufficiency is reported to be responsible for the mental defects which occur in the majority of phenylketonuria (PKU) cases. Until this hypothesis has been tested, the management of PKU patients should continue to utilize phenylalanine-restricted diets. (10 refs.) - *M. S. Fish.*

No address

2368 KNOX, W. EUGENE. What's new in PKU. *New England Journal of Medicine.* 283(25):1404-1405, 1970. (Editorial)

Concentrations of amino acids in brain tissue do not parallel those in serum or cerebrospinal fluid. High serum levels of phenylalanine can distort them, possibly by impairing active transport mechanisms. The nature of the relationship between high serum levels of phenylalanine and the associated disorders in the liver and the brain is still largely unknown. (4 refs.) - *M. S. Fish.*

No address

2369 SHIH, VIVIAN E.; & EFRON, MARY L. Pyridoxine-unresponsive homocystinuria. Final diagnosis of MGH case 19417, 1933. *New England Journal of Medicine,* 283(22):1206-1208, 1970.

The administration of pyridoxine hydrochloride to 2 patients with homocystinuria was without measurable effect. The patients, a 14-year-old girl and her 9-year-old sister, were nieces of 2 similarly affected male siblings of their father -- only the second recorded occurrence of this disease in 2 successive generations where the parents denied consanguinity. Tissue culture techniques which utilized a skin biopsy specimen confirmed the diagnosis of this disease characterized by the absence of the enzyme, cystathionine synthase. Pyridoxine hydrochloride administration (500 mg/day) continued for 1 month. Comparison, by 2-dimensional separation, of excretion levels of methionine and homocystine before and after treatment showed no significant changes. In responsive cases of homocystinuria, pyridoxine therapy eliminates homocystine from the blood and urine and causes methionine levels to decrease to normal values. One of the 2 uncles refused examination. All cases were diagnosed by the presence of one or more of the usual characteristics of the disease (MR, skeletal abnormalities, dislocation of the lenses, thromboembolic pneumonia, and increased levels of methionine). (17 refs.) - *M. S. Fish.*

Massachusetts General Hospital
Fruit Street
Boston, Massachusetts 02114

2370 HOWELL, R. RODNEY. Phenylketonuria in the general population. *New England Journal of Medicine,* 282(26):1486-1487, 1970. (Editorial)

Increased levels of serum phenylalanine occur rarely in the "normal" population. Blood samples of over 22,000 women attending prenatal clinics in Maryland revealed only 1 woman with a high phenylalanine concentration and she was characterized as "dull." These results appear to indicate that few undiagnosed adult cases of phenylketonuria (PKU) exist. Since the recent advent of mass screening for PKU among newborn infants has indicated the possibility of the existence of more PKU cases than would be expected on the basis of the number of MRs, the possibility exists that many infants with high phenylalanine blood levels later acquire the ability to metabolize the substance. This possibility, however, does not suggest that dietary management of the disease should not be continued for all infants and children having high phenylalanine blood concentrations. (5 refs.) - *M. S. Fish.*

No address.

2371 O'FLYNN, MARGARET E.; & HSIA, DAVID YI-YUNG. Note on "Some observations on the dietary treatment of phenylketonuria." *Journal of Pediatrics,* 73(5):800-802, 1968. (Letter: reply to letter by Steisel)

Steisel's analysis of the authors' data on the relationship between age of initiation of dietary treatment of 37 phenylketonuric children and change in IQ is rejected on the basis of the type of statistical test which he employed. The "paired comparison" analysis which Steisel utilized assumes that the distribution of IQs of treated and untreated phenylketonurics does not change with age, an approach which led to the conclusion that the

"late" starters in the authors' study showed significant improvement in IQ compared with "early" starters. While the first and last IQs of the "early" starters change very little and those of the "late" starters do rise, the data do not prove that the time at which dieting begins is the essential feature which is responsible for this difference. (5 refs.) *M. S. Fish.*

Children's Memorial Hospital
2300 Children's Plaza
Chicago, Illinois 60614

2372 STEISEL, IRA M. Note on "Some observations on the dietary treatment of phenylketonuria." *Journal of Pediatrics*, 73(5):798-800, 1968. (Letter)

When a *t* test for related measures was used to analyze recent data of O'Flynn and Hsia, it was found that the mean increase in IQ of 13.08 for 37 phenylketonuric children on low phenylalanine diets is significant. By arbitrarily dividing the group into "early" starters (between 1 wk and 17 mos), the mean increase in IQ of the early starters was insignificant (mean increase of 5.79; *t* of 1.47); however, the increase for the latter group was highly significant (mean increase in IQ of 20.77; *t* of 3.74; $p < 0.01$). These findings tend to disagree with other evidence which indicates that the earlier the diet is begun the more likely is a significant increase in IQ possible. (9 refs.) - *M. S. Fish.*

Temple University School of Medicine
2600 North Lawrence
Philadelphia, Pennsylvania 19133

2373 ROSENBLATT, DAVIS; & SCRIVER, CHARLES R. Heterogeneity in genetic control of phenylalanine metabolism in man. *Nature*, 218(5142):677-678, 1968. (Letter)

Plasma tyrosine and phenylalanine levels were determined for 25 unrelated normal adults and 18 parents of 11 phenylketonuric (PKU) probands. Purification techniques afforded separation of the tyrosine and phenylalanine into discrete peaks at 51 and 55 minutes, respectively, on the Beckman-Spinco amino acid analyzer. A plot of phenylalanine to tyrosine (P:T) ratios against the equivalent concentration of phenylalanine in plasma afforded discrimination of the heterozygotes from normal Ss. Investigation of heterozygotes for atypical forms of PKU showed an entirely different type of distribution from that for classical PKU heterozygotes when P:T ratios were plotted against plasma phenylalanine concentrations. The findings suggest that the cause of impaired phenylalanine metabolism characteristic of the atypical disease is genetically and phenotypically different from that of classical PKU. (11 refs.) - *M. S. Fish.*

McGill University-Montreal Children's
Hospital Research Institute,
Montreal, Canada

2374 KANG, ELLEN SONG; KAUFMAN, SEYMOUR; & GERALD, PARK S. Clinical and biochemical observations of patients with atypical phenylketonuria. *Pediatrics*, 45(1):83-92, 1970.

Measurement of plasma tyrosine levels and determination of excreted metabolites of phenylalanine and tyrosine can provide a better differentiation of classical phenylketonuria (PKU) from the atypical disease than can measurement of phenylalanine levels alone. The experimental groups which were subjected to oral phenylalanine loading tests were 6 atypical patients, 4 sets of parents of atypical patients, 9 parents of children with classical PKU, 4 normal adults, 1 sibling of a PKU patient, and 1 classical PKU patient. Determinations of plasma amino acid content with the Technicon Amino Acid Analyzer and ion exchange column chromatography indicated that plasma tyrosine levels rise significantly in atypical patients when compared with the classical homozygous patient. Differentiation of these 2 types of PKU will enable the physician to institute and maintain proper dietary management. (26 refs.) - *M. S. Fish.*

300 Longwood Avenue
Boston, Massachusetts 02115

2375 HOLLOWELL, J. G., JR.; HALL, W. KNOWLTON; CORYELL, MARGARET E.; McPHERSON, JAMES, JR.,; & HAHN, DOROTHY A. Homocystinuria and organic aciduria in a patient with vitamin-$B_{12}$ deficiency. *Lancet*, 2(7635):1428, 1969. (Letter)

The finding of increased quantities of homocystine in the urine of a patient with familial pernicious anemia and proteinuria (Imerslund's syndrome) demonstrates that such occurrence in this pathology may be due to vitamin-$B_{12}$ deficiency. A 10-year-old white boy, referred because of nausea, vomiting, proteinuria, anemia, and ataxia, showed hemoglobin of 8.2 g/100 ml, and a blood-film of macrocytes and hypersegmented neutrophils. In a Schilling test, 0.2% of orally administered vitamin $B_{12}$ was excreted in 24 hours, and with intrinsic factor, 1.1% was excreted. Two weeks af-

ter administration of parenteral vitamin $B_{12}$ (total 3 mg), the hemoglobin rose, neurological function improved, and the liver was normal size. (No ref.) - *B. Berman.*

Medical College of Georgia
Augusta, Georgia 30902

2376 SALLAN, STEPHEN E., & COTTOM, DENNIS. Peritoneal dialysis in maple syrup urine disease. *Lancet,* 2(7635):1423-1424, 1969.

Peritoneal dialysis is more effective than exchange transfusion or dietary elimination of branched-chain amino acids in managing maple-syrup urine disease. Elevated plasma levels of the branched-chain amino acids confirm the presence of the disease with its accompanying neurological deterioration. Additional testing reflected the efficacy of peritoneal dialysis in clearing leucine from the peritoneum and leucine from urine. (No refs.) - *B. Berman.*

Hospital for Sick Children
London, England

2377 GAULL, GERALD E.; RASSIN, DAVID K.; & STURMAN, JOHN A. Pyridoxine-dependency in homocystinuria. *Lancet,* 2(7581):1302, 1968. (Letter)

Examination of 2 homocystinuric siblings both before and after successful therapy with pyridoxine (800-1,200 mg/day) disclosed that the treatment had no *in vivo* effect on the apparently absent activity of cystathionine synthase. (5 refs.) - *M. S. Fish.*

New York State Institute for Basic Research in Mental Retardation
Staten Island, New York 10314

2378 SAHA, N.; & BANERJEE, B. Genetic influences on serum-uric-acid. *Lancet,* 2(7626):911, 1969. (Letter)

Recent studies comparing serum uric acid levels and blood groups failed to reveal any association between the two and confirm other negative and inconclusive observations whose purpose was to learn if serum uric acid levels have a genetic determinant. In 141 healthy adult Indians the blood group type, number of Ss, and mean uric acid levels (in mg%± standard deviation) were, respectively: O, 54, 3.59± 0.73; A, 26, 3.68± 1.00; B, 54, 3.60± 0.57; AB, 7, 3.54± 0.75; Rh-positive, 97, 3.55± 0.80; Rh-negative, 15, 3.35± 0.85. Previous studies of Caucasian and Indian adults of comparable age and sex failed to reveal racial differences in serum uric acid levels. Thus, studies of the genetic influence on uric acid levels have not provided information which relates to the observed familial occurrence of gout and hyperuricemia. (5 refs.) - *M. S. Fish.*

University Department of Physiology
Singapore, Malaysia

2379 ENGEL, ERIC; NORTHCUTT, ROBERT C.; & BUNTING, KENNETH W. Diabetes and hypothyroidism with thyroid autoantibodies in a patient with a long arm X-isochromosome. *Journal of Clinical Endocrinology and Metabolism,* 29(1):130-132, 1969.

A recent case report reinforces the evidence that diabetes mellitus and the presence of thyroid antibodies (TAB) in patients with gonadal dysgenesis (GD) are associated with an X-long arm isochromosome anomaly. The patient, a 56-year-old Caucasian female, was hospitalized with an illness which had resulted in loss of weight, generalized weakness, polyuria, and glucosuria. Insulin antibodies were not detected; however, thyroglobulin antibodies were found at a serum dilution of 1/40.960. Cytogenetic studies revealed the possibility of a 45,X/46,XXqi/47,XXqiXqi mosaicism. This is the second instance observed by these investigators in which GD and a 46XXqi pattern are associated with both diabetes mellitus and Hashimoto's syndrome. The association of only one of the diseases with this pattern has been confirmed for 2 other such patients, and 2 cases with diabetes had 45,X/46,XXqi patterns. These observations suggest that the development of both diseases is related to X genetic material. (15 refs.) *M. S. Fish.*

Vanderbilt University School of Medicine
Nashville, Tennessee 37203

2380 SKYLER, JAY S. Detecting hypothyroidism. *Lancet,* 1(7588):259, 1969. (Letter)

Infantile hypothyroidism, a disease which can cause MR, remains undetected in a large number of cases. The illness is recognizable in the first few days of life and is usually curable by replacement therapy. The incidence of

the illness is probably as high as that of phenylketonuria or galactosemia; however, unlike these diseases, hypothyroidism has no major program for detection. (1 ref.) - *M. S. Fish.*

No address

2381 BICKEL, H.; FEIST, D.; MULLER, H.; & QUADBECK, G. Ornithinaemia. Another disorder of aminoacid metabolism associated with brain damage. *German Medical Monthly*, 14(3):101-105, 1969.

Hyperornithinaemia, a new metabolic disease associated with MR, jaundice, and tubular renal damage, is described in a 7 1/4-year-old boy and his 3 1/4-year-old sister. Both were jaundiced for 6 weeks after birth and have suffered delayed psychomotor and speech development. EEG patterns were indicative of latent epilepsy. Liver biopsy findings indicated incipient storage cirrhosis. Determination of plasma amino acids disclosed ornithine levels of 202 and 153 µmol/l, respectively for the boy and girl (normal is 30-64 µmol/l). Ornithine transcarbamylase activity in the liver and blood was normal; however, ornithine keto acid transaminase activity in the liver was low in both Ss (0.23 and 0.33 µm/min/g, respectively);normal levels are 1.87 (± 0.66) µm/min/g. Reduction of protein intake to 0.6 and 0.8 g/kg, respectively, for the boy and girl caused the ornithine levels to return to normal. The girl has since made mental progress; however, the boy's condition has remained unchanged. (29 refs.) - *M. S. Fish.*

Universitats-Kinderklinik
Hofmeisterveg 1-9, 69
Heidelberg, Germany

2382 GWINN, JOHN L.; LEE, FRED A., & WERDER, E. Radiological case of the month: Thanatophoric dwarfism. *American Journal of Diseases of Children*, 120(2):141-142, 1970.

Thanatophoric dwarfism is a distinct entity among patients with achondroplasia, is not extremely rare, is fatal within the first hours or days, and is possibly due to some unknown intrauterine accident. Its radiological features include generalized micromelia with curved long bones, narrow chest with short ribs, extremely flattened vertebral bodies, and flaring of the anterior ends of the ribs. These findings differentiate this condition in the newborn from classical achondroplasia, asphyxiating thoracic dystrophy, and the Ellis-van Creveld syndrome. (4 refs.) *S. Glinsky*

Children's Hospital of Los Angeles,
Los Angeles, California, 90027

2383 LUCHSINGER, UWE; BUHLER, ERICA M.; MEHES, KAROLY; & HIRT, HANS RUDOLF. I-cell disease. *New England Journal of Medicine*, 282(24):1374-1375, 1970. (Letter)

The I-cell phenomenon was studied in a male child with clinical features of typical face, skeletal X-rays, MR, and opacities in the cornea all of which favored a diagnosis of mucopolysaccharidosis; however, other indicators did not confirm this. Upon death of the S at 2 years, 3 months due to bronchopneumonia, 2 skin biopsies gave primary cultures of fibroblasts which were distinguished from controls by a fine granulation in the whole cytoplasm. The clinical picture was more closely correlated with the cytologic aspect than with the activities of the lysosomal enzymes. (10 refs.) - *S. Glinsky.*

University of Basel
Basel, Switzerland

2384 HULTBERG, B. N-acetylhexosaminidase activities in Tay-Sachs disease. *Lancet*, 2(7631):1195, 1969. (Letter)

Of the 2 molecular forms of N-acetyl-β-glucosaminidase found by isoelectric focusing in normal tissue, one is missing in patients with Tay-Sach's disease. This A form with isoelectric point at *p*H 4.9-5.0 (the B form has isoelectric point at *p*H 7.0) is hypothesized to be the transport form of the enzyme *in vivo*. In Tay-Sachs patients $GM_2$-ganglioside may not come in contact with the degrading hexosaminidase and is consequently stored in tissue. (7 refs.) - *E. L. Rowan.*

University Hospital
Lund, Sweden

2385 ERSSER, R. S., & SEAKINS, J. W. T. Screening for aminoacidopathies with prepared cellulose layers on aluminum foil. *Nature*, 223(5213):1388, 1969.

Thin layer chromatography of aminoacids on cellulose affixed to aluminum foil is faster and shows greater sensitivity and resolution than paper chromatography. Urine and plasma samples from patients known to have phenylketonuria, tyrosinosis, histidinemia, hyperglycinemia, hyperprolinemia, hyperalaninemia,

maple syrup urine disease, cystinuria, and Hartnup disease have been identified with this technique which may prove to be a valuable screening tool in the laboratory. (4 refs.) - *E. L. Rowan.*

Institute of Child Health
30 Guilford Street
London WC1, England

2386 Diagnosis of Tay-Sachs. *Nature,* 224(5215):113, 1969.

A recent study has cast doubt upon a presumably diagnostic test for missing degradative enzymes (β-N-acetylhexosaminidases) in Tay-Sachs disease. The data suggest that tissue extracts separate into 2 components when subjected to starch gel electrophoresis at *p*H 6.0. The A component was absent from the tissue of 7 patients with Tay-Sachs disease. Other research found that these 2 components separated with isoelectric points at 5 (compound A) and 7.5 (compound B). Activity at *p*H 5 was missing in only 3 of 4 patients with Tay-Sachs disease. Further work in this area of possible early diagnosis is essential. (2 refs.) - *E. L. Rowan.*

2387 RAINE, D. NOEL. Tay, Sachs et al. *Lancet,* 2(7627):959-960, 1969. (Letter)

The differentiation of lipid storage diseases formerly classified as variants of Tay-Sachs disease has been expedited by biochemical examination of leucocytes for a number of hydrolytic enzymes and by thin layer chromatography examination of the lipid extracted from the sediment of freshly passed urine for lipid metabolites. The lipid of Tay-Sachs disease ($GM_2$ ganglioside) can be differentiated from $GM_1$ ganglioside, $GM_3$ ganglioside, and ceramide glucoside (Gaucher's disease). O'Brien's $GM_2$ gangliosidosis is shown to be a globoside-storage disease. The clinical complexity of these diseases is great, and biochemical study is mandatory. - (9 refs.) *E. L. Rowan*

Children's Hospital
Birmingham 16, England

2388 SHAW, R. F.; & SMITH, A. P. Is Tay-Sachs disease increasing? *Nature,* 224(5225):1214-1215, 1969. (Letter)

Tay-Sachs disease occurs in approximately 158 births/million among Ashkenazi Jews (Central Europe) and in only 1.7 births/million among the Sephardic Jews (Mediterranean Basin). Myrianthopoulos and Aronson proposed that simple heterozygote advantage in the Ashkenazi accounted for the difference in gene frequency of the 2 populations over 50 generations. When a heterozygote advantage of 1.295% is assumed, the incidence of Tay-Sachs disease among the Ashkenazi by now would have been only 5/million. The high observed incidence suggests that the disease is rapidly increasing in Ashkenazi Jews. Genetic counseling would have little effect in reducing the reproduction of carriers because most of them marry normal homozygotes and go unrecognized. (1 ref.) - *C. L. Pranitch.*

Dalhousie University
Halifax, Nova Scotia, Canada

2389 WINICK, MYRON. Symposium on nutrition, growth and mental development: Biological correlations. *American Journal of Diseases of Children,* 120(5):416-418, 1970.

Correlations exist between biochemical changes in the brains of malnourished animals or children who die of malnutrition and functional changes in the same animals or children surviving a severe early infancy malnutrition period. Animal studies tentatively link early malnutrition with brain function deficits, such as decreased exploratory behavior and difficulty in response extinction, but direct causation cannot be posited. Only one study is investigating biochemical brain changes in children who die compared with functional changes in others who survive. Preliminary results indicate that 91% of malnourished children who recovered suffer irreversible functional deficits and that height and cranial growth are qualified indices of intellectual development. The infants who died showed cellular and lipid changes in the cerebrum, cerebellum, and brain stem which are directly proportional to reduction in head circumference. Biological correlations are limited, preventing the establishment of a definite cause and effect relation. (15 refs.) - *S. Glinsky.*

Cornell University Medical College
New York, New York 10021

2390 BIRCH, HERBERT G. Symposium on nutrition, growth and mental development: Introductory remarks. *American Journal of Diseases of Children,* 120(5):395-397, 1970.

The symposium papers discuss the relation of nutrition to mental development, particularly as to how the experiences of malnutrition which coincide with the brain's most rapid growth and differentiation may effect development. The question encompasses not

only pediatrics but also obstetrics, in that maternal nutrition affects fetal brain development. The presentations address themselves to the nutritional outcome variables of inhibition of physical growth and mental development or behavior. Specific areas touched upon are the relation of mental development in children to their nutritional antecedents, the outcomes that may result from exposure to conditions of nutritional risk, the effects of nutrition upon the chemical composition of the brain, and cellular development in the brain in relation to nutritional stress. (No. refs.) *S. Glinsky.*

Albert Einstein College of Medicine
Yeshiva University
Bronx, New York 10461

2391 FITCH, NAOMI; PINSKY, LEONARD; & LACHANCE, R. CLAUDE. A form of bird-headed dwarfism with features of premature senility. *American Journal of Diseases of Children,* 120(3):260-264, 1970.

A longitudinal case-study is presented of a 19-year-old male who exhibits a combination of proportionate bird-headed dwarfism with signs of premature senility. Since there is a medical record from birth to adulthood, the case is especially valuable for its developmental pattern. Various investigations carried out included karyotype (normal), dermatoglyphics (multiple palmar creases and skin redundancy), skin biopsy (irregular atrophy, vacuolization, and melanophages). radiograms (osteoporatic bones, scoliosis, pes cavum, and dorsiflexion), and laboratory analysis of the blood (normal) and urine (normal). The patient presents the principal features of proportionate dwarfism, gradual onset of a bird-headed appearance, bilateral ptosis, premature graying and loss of scalp hair, and short hands and feet. Although he was hospitalized once for developmental retardation, his IQ is now in low normal range. The case is an example of those syndromes in which some developmental abnormalities probably lead to a variety of morphogenetic changes and to some features of premature senility. (9 refs.) - *S. Glinsky.*

Jewish General Hospital
Montreal 249, Canada

2392 CRAVIOTO, JOAQUIN; & DELICARDIE, ELSA R. Mental performance in school age children: Findings after recovery from early severe malnutrition. *American Journal of Diseases of Children,* 120(5):404-410, 1970.

Severe malnutrition in children was studied to determine if its effect on the mental development of infants would vary as a function of the period of life at which malnutrition was experienced. The Ss were all severely malnourished children admitted to the Hospital Infantil de Mexico during 1959. On initial examination all infants scored considerably below age norms. During nutritional rehabilitation, 14 children admitted between 15 and 42 months of age gradually approached age expectations, while 6 infants admitted before 6 months of age retained developmental deficits. Other studies corroborate permanent damage to perceptual and intellectual skills by early malnutrition. Concomitant hospitalization also impairs development by interfering with experience and behavior differentiation. Individuals thus impaired in cognitive skills tend to remain in their poor socioeconomic environment, marry other such individuals, and perpetuate a new generation of malnourished, mentally underdeveloped children. (34 refs.) -*S. Glinsky.*

Hospital Infantil de Mexico
Mexico City 7, Mexico

2393 McKUSICK, VICTOR A. The relative frequency of the Hurler and Hunter syndromes. *New England Journal of Medicine,* 283(16):853-854, 1970.

Genetic factors underlie the greater rate of occurrence of the Hunter syndrome over the Hurler syndrome. Both syndromes are a disturbance of mucopolysaccharide metabolism, with the Hurler syndrome inherited as an autosomal recessive, and the Hunter syndrome as an X-linked recessive. If the same mutation rate for the 2 conditions and a fitness of 1.0 of the heterozygous persons in both syndromes is posited, the relative incidence at birth of the Hunter syndrome is 1 1/2 times that of the Hurler syndrome. The relative prevalance of the Hunter syndrome is 2 to 3 times that of the Hurler syndrome due to the longer survival of Hunter cases. Current hospital records over the last 20 years confirm this excess of Hunter syndrome patients. (10 refs.) - *S. Glinsky.*

Johns Hopkins University School of Medicine
Baltimore, Maryland 21205

2394 GREENE, MARTIN L.; NYHAN, WILLIAM L.; & SEEGMILLER, J. EDWIN. Hypoxanthine-guanine phosphoribosyltransferase deficiency and Xg blood group. *American Journal of Human Genetics,* 22(1):50-54, 1970.

Studies in 8 families to determine loci for deficiency of the enzyme hypoxanthine-guanine phosphoribosyltransferase (PRT) and for the

X-linked erythrocyte antigen Xg have indicated that linkage cannot be detected because of the distance between the loci on the human X chromosome. Propositi of families studied showed complete or partial PRT deficiency in erythrocyte hemolysates; complete blood-grouping analyses confirmed the given percentage. Xg typing was performed on erythrocytes from clotted blood or blood collected in acid-citrate-dextrose solution. Although loci positioning has not yet been achieved, new information to identify enzyme abnormalities or to measure recombination frequencies in cells may soon make it possible. (24 refs.) *B. Berman.*

University of Washington School of Medicine
Seattle, Washington 98105

2395 KOMROWER, G. M. Phenylketonuria: Some current problems. *Archives of Disease in Childhood,* 45(239):2-4, 1970.

A recommendation that the Guthrie Bacterial Inhibition Screening Test for phenylketonuria (PKU)--examination of heel-prick blood taken between the sixth and fourteenth days of life--be substituted for the Phenistix urine test is rejected on grounds of improper timing, excessive personnel demands, cost, and reliability. Suggested alternatives are 1-dimensional chromatography and fluorimetry, both already tried extensively and found reliable. Chromatography offers the advantage of easy identification of 6 amino-acid disturbances and sophisticated interpretation of the chromatogram; its use in areas to cover 150,000 to 200,000 births a year would provide useful data on PKU and other amino-acid disorders, and on dietary therapy. The only currently available PKU therapy (introduction of a low-phenylalanine diet with enough protein, vitamins, and growth factor to permit normal growth) is criticized on grounds of overtreatment and treatment outcome. There is urgent need for a careful, continuing treatment record of all PKU children. (2 refs.) - *B. Berman.*

Royal Manchester Children's Hospital
Pendlebury, Manchester, England

2396 HUDSON, FREDERICK P.; MORDAUNT, VIRGINIA L.; & LEAHY, IRENE. Evaluation of treatment begun in first three months of life in 184 cases of phenylketonuria. *Archives of Disease in Childhood,* 45(239): 5-12, 1970.

In 184 phenylketonuria (PKU) patients whose treatment began in the first 3 months of life, IQs and physiques were only slightly below average, the majority showing none of the severe MR occurring in untreated PKU. Diagnosis was confirmed before treatment by elevated serum phenylalanine, normal serum tyrosine, and urinary phenylalanine metabolites. One group displayed no evidence that age when treatment begins affects ultimate IQ, but more studies are needed to consider the manifold factors influencing child development. Although absolute proof that early administration of a low-phenylalanine diet is necessary to prevent MR in infants showing PKU biochemical signs would require a random controlled trial, it can be claimed that such procedure can prevent the severe MR frequently observed in untreated PKU; it is certain that all cases of hyperphenylalaninemia need careful evaluation. Earlier diagnosis, different biochemical controls, improvements in palatability and biologic value of the diet may improve obtained results. (10 refs.) *B. Berman.*

Alder Hey Children's Hospital
Liverpool, England

2397 NIHILL, M. R.; WILSON, D. S.; & HUGH-JONES, K. Generalized glycogenosis type II (Pompe's Disease). *Archives of Disease in Children,* 45(239):122-129, 1970.

Two cases of a glycogen-storage disease (Pompe's disease), presenting characteristic clinical aspects (cardiomyopathy accompanied by skeletal hypotonia and EKG with a short PR interval and high-voltage QRS complexes), were diagnosable by recently developed histochemical procedures. Inherited as an autosomal recessive with equal sex distribution, the disease shows accumulation of structurally normal glycogen made unavailable for normal enzymatic degradation by absence of α 4-6 glucosidase from intracellular lysosomes. Diagnosis was confirmed by examination of peripheral blood lymphocytes (or liver or skeletal muscle) by periodic acid-Schiff staining, which normally reveals no cytoplasmic glycogen granules. No successful treatment of the disease has yet been developed. (27 refs.) - *B. Berman.*

Texas Children's Hospital
Houston, Texas

2398 SUTHERLAND, BETTY S.; BERRY, HELEN K.; & UMBARGER, B. Growth and nutrition in treated phenylketonuric children. *Journal of the American Medical Association,* 211(2): 270-276, 1970.

Data (growth progress, clinical signs, nutritional status, and laboratory measures) gath-

ered for 7 years on 7 children treated for phenylketonuria (PKU) revealed that unfavorable developments (inconstant growth, high serum phenylalanine levels, negative clinical signs) resulted when essential amino acids were derived chiefly from a commercial, low-phenylalanine protein substitute. Intake of phenylalanine in amounts needed for growth from natural food sources reversed the unfavorable signs. All children showed similar clinical symptoms during periods of inconstant growth--growth progress in terms of deviation from the group mean was measured by the Fels composite sheet for Midwestern children. Growth and nutritional data were correlated with behavior (time of onset, intensity, and duration) and physical signs. In general, all Ss grew well (normal weight gain and linear growth) when protein intake from natural foods was sufficient and met, but did not exceed, recommended growth requirements. In the past 2 years, patients treated from early infancy according to this regimen have benefitted. (12 refs.) - *B. Berman.*

University of Cincinnati College of Medicine
Cincinnati, Ohio 45219

2399 FIERRO-BENITEZ, RODRIGO; STANBURY, JOHN B.; QUERIDO, ANDRIES; DeGROOT, LESLIE; ALBAN, RODRIGO; & CORDOVA, JORGE. Endemic cretinism in the Andean region of Ecuador. *Journal of Clinical Endocrinology and Metabolism,* 30(2):228-236, 1970.

Of 10 cretins from rural Ecuador where endemic goiter is severe, 8 revealed severe motor disabilities, and none responded significantly to thyroid replacement. The Ss, not clinically hypothyroid, were diagnosed on the basis of severe MR, short stature, and a complex of customary traits. Most clinical and laboratory tests including hematology, EKG, and serum measurements were within normal limits; however, serum hormone levels were low normal, and radioiodine uptake values were high. Although most showed normal sexual development, there were significant irregularities in bone development and EEG activity. Thyroid abnormalities included impalpability in 4 Ss and nodular goiters in 6Ss. All patients showed neurologic impairment, severe MR, and marked hearing loss. Most were mute; 3 Ss with severe dislalia could not make more than 4 or 5 intelligible sounds. In most cases, there was a spastic diplegia, probably of cerebral origin. Neurologic aspects, once established, are irreversible. (18 refs.) - *B. Berman.*

Central University Medical School
Quito, Ecuador

2400 PAPADOPOULOS, S. N.; VAGENAKIS, A. G., MOSCHOS, A.; KOUTRAS, D. A.; MATSANIOTIS, N.; MALAMOS, B.; BISMUTH, J.; BECHET, M. M.; & LISSITZKY, S. A case of a partial defect of the iodide trapping mechanism. *Journal of Clinical Endocrinology and Metabolism,* 30(3):302-307, 1970.

A 9-year-old boy, hospitalized only because of delayed growth, is probably the first reported case of thyroid dyshormonogenesis presenting only a partial defect in the iodide-trapping mechanism. The patient, whose family showed no evidence of thyroid pathology or MR, had always been smaller than other children his age, showed bone age of a 5-year-old and had an IQ of 65. Salivary glands manifested some iodide-trapping capacity (thyroid/medium ratio of iodide in thyroid tissue slices of 1.7), even though saliva/plasma iodide ratio was markedly depressed. Thyroidal radioiodine uptake and clearance were low and did not respond to TSH stimulation. Thyroidal microscopic analysis revealed an adenoma with polymorphic vesicles and hyperactive epithelial cells; biochemical analysis showed low iodine concentration and poor iodination of thyroglobulin. Defective iodide trapping, probably due to a recessive factor, apparently causes thyroidal iodine deficiency. (16 refs.) *B. Berman.*

Athens University
Athens, Greece

2401 ARONSON, STANLEY M.; ARONSON, BETTY, E.; VOELLER, KYTJA; KANE, WALTER C.; & SCHENCK, LARRY. Clinical neuropathological conference. *Diseases of the Nervous System,* 31(3):208-216, 1970.

An 8-year-old white girl (hospitalized for difficulties in walking, eating, and coordination) was diagnosed eventually with Niemann-Pick disease and illustrates the difficulties in differential diagnosis in a familial neurodegenerative disease beginning in late infancy or in childhood. At age 5, she was designated a slow learner; at 6 she was found intellectually subnormal, and at 7 she presented "drop seizures" with signs of cerebellar ataxia. An MR brother was hospitalized for incontinence, seizures, and walking and speaking difficulties. The S continued to deteriorate with occasional grand-mal seizures, became unresponsive, showed cardiorespiratory arrest, and expired 2 years after admission. Niemann-Pick disease is one of a group of rare and confusing pathologies. Differential diagnosis is complicated by ultrastructural and biochemical data that overlap for these and

other diseases (Tay-Sachs, Gaucher, and Hurler). Genetic make-up of the lipodoses is not yet clarified; genetic risk can be determined by additional amnion-culture studies. (10 refs.) - *B. Berman.*

Miriam Hospital
Providence, Rhode Island 02906

2402 McKEAN, CHARLES M. Growth of phenylketonuric children on chemically defined diets. *Lancet,* 1(7638):148-149, 1970. (Letter)

A chemically defined diet, adequate for physiologic function in normal individuals, was found nutritionally sufficient for 5 SMR (IQ 20-30) children with phenylketonuria. It was the only source of nutrition for 30 months without reduction of phenylalanine to accommodate reduced tolerance and resulted in gains in weight (11-20 lbs), height (2-8 inches), and temperament. (3 refs.) - *B. Berman.*

Sonoma State Hospital
Eldridge, California 95431

2403 METALON, REUBEN; DORFMAN, ALBERT; NADLER, HENRY L.; & JACOBSON, CECIL B. A chemical method for the antenatal diagnosis of mucopolysaccharidoses. *Lancet,* 1(7637): 83-84, 1970. (Letter)

Determination of acid-mucopolysaccharide content of amniotic-fluid samples and subsequent fractionation of polysaccharide for heparitinsulphate content constitutes a simple and rapid prenatal check for Hurler's syndrome. Abnormal fluid showed a high content (63%) of heparitin sulphate, which is not detectable in normal fluid; increased quantities of the substance could be detected directly by nitrous-acid reaction for N-sulphated hexosamine. Prenatal diagnosis of this syndrome may suggest prophylactic abortion. (5 refs.) *B. Berman.*

Pritzker School of Medicine
Chicago, Illinois

2404 WEISS, LESTER; & MELLINGER, RAYMOND C. Congenital adrenal hypoplasia - An X-linked disease. *Journal of Medical Genetics,* 7(1):27-32, 1970.

The occurrence of adrenal hypoplasia not associated with abnormalities of the pituitary gland in 3 of 4 male siblings with the same mother and different fathers provides strong evidence that this anomaly was due to an X-linked recessive gene. Affected siblings had adrenal hypofunction demonstrated by biochemical and chemical determinations and exhibited failure of adrenal response to ACTH stimulation. Necropsy of one infant who died after a hernia repair confirmed adrenal hypoplasia in the presence of a normal pituitary gland. Additional support for an X-linked recessive gene was found in an analysis of 20 males and 5 females with adrenal hypoplasia not associated with tuberculosis, adrenal hemorrhage, or abnormalities of the pituitary gland. One female and 15 males had affected siblings. (26 refs.) - *J. K. Wyatt.*

Henry Ford Hospital
Detroit, Michigan

2405 When lipids are not degraded. *Nature,* 225(5227):12, 1970.

Lipids accumulate in the commoner sphingolipidoses because the enzymes which degrade them are absent. The glucocerebrosidase activity in tissues is only about 15% of normal in Gaucher's disease. The gangliosides are probably the source of lipid accumulation in neurons in the infantile form of Gaucher's disease. Tay-Sachs disease presents a more complex problem. There appears to be an absence of a lysosomal hexosaminidase which catalyses the cleavage of the N-acetylgalactosaminyl residue of Tay-Sachs ganglioside. In demyelinating diseases, the ethanolamine plasmalogen is lost from the myelin, and there are greater than normal concentrations of the $Mg^{2+}$-dependent enzyme which hydrolyses the alk-1-enyl linkage of this lipid. (No refs.) - *J. K. Wyatt.*

2406 BEJAR, R.; SHEAR, CAROL S.; SCHINDELER, JOAN; HERNANDEZ, F. A.; & SMITH, G. F. Mental retardation, unusual facial appearance, and abnormalities of the great vessels (normocalcaemic stage of idiopathic infantile hypercalcaemia). *Journal of Mental Deficiency Research,* 14(1):16-24, 1970.

The triad of unusual facies, great vessel stenosis, and MR is described in 5 children assumed to be in the normocalcemic phase of idiopathic infantile hypercalcemia. Facial features include hypertelorism, epicanthic folds, pudgy upturned nose, full cheeks, thick upper lip, broad mouth, small mandible, and low-set ears. The transient increase in serum calcium is generally missed during the early phase of gastrointestinal distress and poor growth and the diagnosis is usually made in retrospect. (15 refs.) - *E. L. Rowan.*

University of Miami School of Medicine
Coral Gables, Florida 33146

2407 PERRY, T. L.; BUNTING, ROSAMUND; TISCHLER, BLUMA; HANSEN, SHIRLEY; DIAMOND, SHEILA; & WEPPLER, V. CARROLL. Unrecognized maternal biochemical disease: An uncommon cause of mental retardation in children. *Journal of Mental Deficiency Research*, 14(1):44-48, 1970.

A group of 152 women with at least one child with MR of unknown etiology was screened for undiagnosed biochemical disease, but in no case was a severe disorder discovered. This group of healthy women of normal intelligence included one case each of heterozygous phenylketonuria, hyperprolinemia, hyperglycinemia, possible maple syrup urine disease, and diabetes mellitus, and 3 cases of heterozygous cystinuria. In none of these cases was the abnormality found in the retarded child. Among 25 mentally normal siblings of patients with phenylketonuria, one was found to have classical phenylketonuria. With the previously determined exception of phenylketonuria, metabolic screening of pregnant women is presently unwarranted. (15 refs.) - *E. L. Rowan.*

University of British Columbia
Vancouver 8, Canada

2408 HANNAWAY, PAUL J. Failure to thrive: A study of 100 infants and children. *Clinical Pediatrics*, 9(2):96-99, 1970.

The records of 100 hospitalized infants and children admitted for failure-to-thrive were analyzed for sex, age, birth weight, clinical and family history, laboratory data, physical examination, discharge diagnosis, and mortality. Of the 49 patients not thriving because of definite organic disease, 18% had primary central nervous system disorders and 5% had urinary tract abnormalities. Of 51 patients not thriving on a non-organic basis, 40 could be related to abnormal maternal or environmental relations. The cause of growth failure in infants or children without organic disease is not understood, although it has been suggested that the emotionally or maternally deprived child has physiologically impaired output of growth hormone or hypopituitarism secondary to low-calorie intake. A specific diagnostic approach is not practical because of varied causative possibilities. Failure-to-thrive infants should be given a complete historical and physical examination with special attention given to environmental-maternal influences. (15 refs.) - *C. L. Pranitch.*

Children's Hospital Medical Center
Boston, Massachusetts 02115

2409 NOONAN, K.; PORTEOUS, N.; KOKKINN, J.; & *YU, J. S. Fantasy becomes reality--The effects of the birth of a second phenylketonuric infant to a Greek family. *Australian Journal of Mental Retardation*, 1(4):123-126, 1970.

A Greek mother who gave birth to a second phenylketonuric infant experienced many anxieties during pregnancy and the puerperium, went through a period of grief and mourning on hearing of the child's condition, but after passing through 6 weeks of depression, attained objective acceptance of the situation through counseling. There is a 1-in-4 chance of another affected child at every pregnancy. The second PKU child intensified her feelings of being a poor mother, and cultural factors contributed to her breakdown. Her eventual adjustment illustrated the value of intervention at times of crisis. (2 refs.) - *B. Berman.*

*Royal Alexandra Hospital for Children
Camperdown, New South Wales, Australia, 2050

2410 SHIPMAN, R. T. Homocystinuria: Some odd clinical presentations and some pitfalls in diagnosis. *Australian Journal of Mental Retardation*, 1(3):94-96, 1970.

Three cases (plus 2 falsely diagnosed) of homocystinuria emphasize the disease's bizarre features (2 presented cerebrovascular accidents; 1 a severe gastrointestinal disorder) and need for careful biochemical testing. In young patients, morphology may not suggest the disease and MR may not be obvious; where thrombosis (the most serious and fatal complication in this disease) could be considered, homocystinuria should be suspected. Misleading negative results from urinary homocystine tests (cyanide-nitroprusside, chromatography) require repetition in truly suspect cases. The disease shows a wide range in mental ability: university-graduate level to gross MR (latter is apparent during the first year of life). (10 refs.) - *B. Berman.*

Hospital for Sick Children
Toronto, Ontario, Canada

2411 O'GRADY, D. J.; BERRY, H. K.; & SUTHERLAND, B. S. Phenylketonuria: Intellectual development and early treatment. *Developmental Medicine and Child Neurology*, 12(3):343-347, 1970.

Diagnosis of phenylketonuria (PKU) before the age of 3 months in 8 children and subsequent treatment for 3 to 8 years have resulted in



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intellectual development comparable to that of their parents and unaffected siblings. Diagnosis was substantiated by high serum-phenylalanine levels and urinary metabolites common to PKU in each child. Administration of the Stanford-Binet Intelligence Scale, Form L-M, to the children and the verbal IQ test of the Wechsler Adult Intelligence Scale to all of the parents revealed no apparent marked differences in IQ between the early-treated children and their unaffected siblings, and demonstrated similar mean IQs for early-treated children, unaffected children, and their parents, especially for the mothers. Results suggest that closely monitored treatment aids in maintaining nutrition at the level necessary for optimal physical growth and development. Intellectual deficits in PKU children as opposed to their siblings may be more dependent upon the difference in treatment variables (such as the frequency of testing of blood and urine, frequency of clinical evaluation, and the utilization of obtained data for nutritional alterations) than upon the differences in the children's response to a uniform treatment procedure. (10 refs.) - *B. J. Grylack.*

University of Cincinnati College of Medicine
Cincinnati, Ohio 45229

2412 RAINE, D. NOEL. Biochemical relationships in the neuronal sphingolipidoses. *Developmental Medicine and Child Neurology*, 12(3):348-356, 1970.

Advances in the chemical and enzymatic analysis of neurodegenerative disorders have led to a new, more satisfactory classification through the discovery of marked chemical changes and abnormalities in classical forms of these diseases. Since the description of the deep red foveal capillaries by Tay and their association with childhood dementia and blindness by Sachs, the massive group of cases with this disease has been subdivided according to the time of onset and chemical or enzymatic justifications. One case each has been found with globoside storage disease and with a variation of Tay-Sachs disease, in which 90% of ganglioside is represented by a single substance. Variants of Tay-Sachs with somatic features have been isolated on the basis of formalin fixation and galactosidase deficiency. Enzyme defect has also been analyzed in Fabry's, Gaucher's, and Niemann-Pick diseases. It is probable that further specific types of genetically determined cerebral degenerative disorders remain to be identified. (41 refs.) - *B. J. Grylack.*

Children's Hospital
Birmingham 16, England

2413 CAVANAGH, J. B. Batten's disease--A separate entity? *Developmental Medicine and Child Neurology*, 12(3):377-378, 1970.

The familial cerebral degeneration in Batten's disease has been associated erroneously with amaurotic familial idiocies. This juvenile disease differs significantly from the infantile Tay-Sachs disease in the following respects: the frequent onset with seizures, the specific changes in the ocular fundi, the absence of the macular abnormality and membranocytoplasmic bodies, the extensive loss of nerve cells in the cerebrum and cerebellum, and the normal pattern of sphingolipids extracted from brain tissue. Batten's disease is an independent entity separate from the gangliosidoses. No true lipid storage occurs, and the ceroid-lipofuscin pigment accumulation is secondary to the primary neuronal degeneration. (2 refs.) - *B. J. Grylack.*

Institute of Neurology
8/11 Queen Square
London, W.C. 1., England

2414 SENIOR, BORIS. Practical approaches to growth retardation. *Hospital Practice*, 5(2):67-77, 1970.

The differential diagnosis of the short child (below the third percentile in height) includes skeletal disorders such as achondroplasia or rickets, chromosomal disorders such as Turner's syndrome, dwarfism syndromes, deprivation, endocrine disorders (thyroxine or growth hormone deficiency or cortisone excess), systemic disease, and normality. It is essential to document size at birth, growth rate, and size of parents and then proceed to laboratory screening. It is imperative that endocrine disorders be treated, parents of normal short children be reassured that they have normal short children, and such children be followed to assure that no underlying disorders have been overlooked. (No refs.) *E. L. Rowan.*

Tufts University School of Medicine
Boston, Massachusetts 02111

2415 DUGUID, R. Errant genes. *British Medical Journal*, 1(5695):564, 1970. (Letter)

The evidence that excess phenylalanine itself is toxic to the brain in phenylketonuria is sketchy. The absence of phenylalanine hydroxylase shunts phenylalanine into many alternate oxidative pathways, and one or more of

these products may be responsible for the neurotoxic effects. Phenylalanine might also act indirectly *via* the inhibition of Dopa-decarboxylase. (2 refs.) - *E. L. Rowan.*

University of York
York, England

2416 LEU, M. L.; STRICKLAND, THOMAS G.; WANG, C. C.; & CHEN, T. S. N. Skin pigmentation in Wilson's Disease. *Journal of the American Medical Association,* 211(9):1542-1543, 1970.

Twelve of 20 Ss with Wilson's disease were also noted to have hyperpigmented areas on the anterior aspects of the lower part of the legs. Histological studies revealed these hyperpigmented lesions were caused by increased melanin deposition rather than the presence of copper or iron. Persons having other metabolic conditions with liver dysfunction also exhibit hyperpigmentation due to spotted or diffuse melanosis. Since Wilson's disease is characterized by an excessive body burden of copper, much of which is stored in the liver, it seems likely that the liver abnormality plays a part in the cause of the skin pigmentation. Hyperpigmented lesions on the anterior aspect of the legs may be helpful in diagnosing Wilson's disease. (5 refs.) - *C. L. Pranitch.*

Naval Medical Research Unit No. 2
Box 14, APO
San Francisco, California 96263

2417 VIUKARI, N. M. A. Intolerance to diphenylhydantoin in five cases of Vogt-Spielmeyer disease. *Journal of Mental Deficiency Research,* 13(4):245-248, 1969.

Of a group of 45 MR patients whose anticonvulsant drugs were withdrawn in order to assess the effects of diphenylhydantoin (DPH), 5 Ss (CAs 12-20) with Vogt-Spielmeyer disease had increasingly frequent seizures with the intensity appearing to be dose dependent. The DPH alone (6 mg/kg/day) initially had replaced phenobarbitone and/or primidone combined with 0.1 to 0.2 g/day of DPH. When phenobarbitone (0.2-0.3 g/day) replaced the DPH, their clinical condition returned to its previous state. The effects of DPHnon brain metabolism may be parallelled and intensified by the increased lactic dehydrogenase activity which is a characteristic of amaurotic familial idiocy. (21 refs.) -*M. S. Fish.*

University of Helsinki
Helsinki, Finland

2418 VAINSEL, M; VANDEVELDE, G.; SMULDERS, J.; VOSTERS, M.; HUBAIN, P.; & LOEB, H. Tetany due to hypomagnesaemia with secondary hypocalcaemia. *Archives of Disease in Childhood,* 45(240):254-258, 1970.

A 5-month-old male was admitted for study because of persistent tetany and convulsions which were unresponsive to hydantoin or barbiturates. The S was the ninth sib of 2 females and 6 males. Five of the latter had had a history of convulsive attacks and 2 had died. Clinical examination revealed constant tetany with bilateral Trousseau's sign and carpopedal spasm. Initial laboratory findings indicated low serum calcium and very low calcium excretion. Intravenous calcium administration and, later, vitamin D treatment were without effect. When a magnesium deficiency was confirmed, intravenous administration of magnesium was initiated; however, the patient died during the third day of treatment. Autopsy findings showed necrosis and calcinosis of the miocardial fibers. Calcinosis was also observed in the kidneys and a cerebral artery, the latter finding having also been made on autopsy of one of the patient's sibs. Since all reported cases of this type occur in males, the disease may be an inherited, recessive, sex-linked defect. (14 refs.) -*M. S. Fish.*

Hôpital Universitaire Saint-Pierre
Rue Haute 320
Bruxelles, Belgium

2419 SOUTTER, G. B.; *YU, J. S.; LOVRIC, A.; & STAPLETON, T. Hereditary orotic aciduria. *Australian Paediatric Journal,* 6(1): 47-52, 1970.

Early diagnosis of hereditary orotic aciduria (a genetic disorder of pyrimidine metabolism) and prompt treatment with uridine can prevent the occurrence of MR. The S, a 5-month-old male son of an MR woman who had 2 retarded sisters, showed MR, growth retardation, megaloblastic anemia, eczema, fine sparse hair, and orotic acid crystalluria. These clinical findings and the lack of response to standard hematinics prompted the diagnosis of orotic aciduria (the sixth reported case) and treatment with uridine (250 mg orally 3 times daily). The hemoglobin level rose from 7.3 to 8.8 g/100 ml in 6 days to 12-13 g/100 ml for the remainder of the hospital stay; the reticulocyte count rose to 10% in 6 days and to a maximum level of 15%, although it dropped sharply as the hemaglobin continued to rise. The weight, originally in the tenth percentile, increased only gradually at first, but 21 months after therapy was begun, the S was at

the sixtieth percentile. Since the mild MR deficit has persisted, environmental and familial factors may be involved in this case. Preliminary studies indicate that the mother and an uncle are heterozygous for orotic aciduria. (7 refs.) - *M. S. Fish.*

Royal Alexandra Hospital for Children
Sydney, New South Wales 2050, Australia

2420 SCHRAMM, G.; WURBACH, G.; & FIEHRING, C. Zur Mukopolysaccharidausscheidung beim Morbus Hunter (On the mucopolysaccharide elimination in Hunter's disease). *Helvetica Paediatrica Acta,* 24(4):404-412, 1969.

Two brothers (CA 6 and 7 yrs) with the clinical features of Hunter's disease exhibited unusual characteristics in the elimination of mucopolysaccharides. Clinical findings established the disease in both brothers to be the Hunter X-chromosome recessive type, but with Alder-Reilly leukocyte granula and an almost normal intelligence, as evidenced in social and practical behavior. Urine elimination of mucopolysaccharides was excessive, increasing from 138.8 mg/day to 234.8 mg/day in 2 years. This characteristic finding for the Pfaundler-Hurler disease was countered by a high chondroitinsulfate A/C elimination and a low keratosulfate elimination. Expected high eliminations of heparitinsulfate and chondroitinsulfate B were found, with the former exceeding the latter. Examinations of the family revealed a significantly high chondroitinsulfate B elimination in the oldest daughter, while the father and mother had normal or nearly normal elimination patterns. (40 refs.) *S. Glinsky.*

Orthopadische Klinik der Medizinischen Akademie Erfurt
Erfurt, East Germany

2421 ERTEL, NORMAN H.; REISS, JOSEPH S.; & SPERGEL, GABRIEL. Hypomagnesemia in neonatal tetany associated with maternal hyperparathyroidism. *New England Journal of Medicine,* 280(5):260-263, 1969.

Hypomagnesemia and hypocalcemia have been noted in the neonate of a mother with primary hyperparathyroidism. The 14-day-old Negro male infant was treated with intravenous calcium gluconate and a low-phosphate formula and achieved normal serum calcium, magnesium, and phosphorus levels. Previously, hypomagnesemia has not been noted in the syndrome of neonatal tetany associated with maternal hyperparathyroidism. Evidence indicates dependence of fetal parathyroid gland activity on the calcium-phosphorus balance of the mother. Diagnosis of hyperparathyroidism in the completely asymptomatic mother was made from the prolonged neonatal tetany. The effectiveness of the formula therapy may be due to direct action on neuronal irritability or to indirect actions on calcium metabolism. (27 refs.) - *S. Glinsky.*

Jewish Hospital and Medical Center of Brooklyn
Brooklyn, New York 12238

2422 *BERGER, B.; BAUMANN, N.; ESCOUROLLE, R.; LAUNAY, C.; & SARRUT, S. Un cas de lipidose infantile tardive. Donnees anatomocliniques, biochimiques et ultrastructurales (A case of late infantile lipoidosis: Anatoclinical, biochemical and ultrastructural data). *Acta Neurologica et Psychiatrica Belgica,* 69(3):177-192, 1969.

A case of late infantile lipoidosis is reported which started at the age of 4 and was terminated by death at 7 years. The histological and biochemical studies, made after fixation in formol saline, showed cerebral and hepatic lesions. In the neurons there was an accumulation of a substance which had the histochemical characteristics of a neutral glycolipid and which appeared under a granular or globular form. The granular masses were formed of cytoplasmic membranous bodies and of zebra bodies. The globular masses consisted of membranous profiles organized in pairs. The biochemical analysis revealed only a slight increase of the gangliosides of $GD_{1B}$ and $GT_1$ types. In the liver, centrolobular lesions limited to the hepatic cells were observed. In the affected cells, lipidic granules were noted, as well as vacuoles, the content of which could not be identified. (33 refs.) - *B. A. Pastine.*

*Laboratoire de Neuropathologie Charles Foix
Hôpital de la Salpetriere
Paris, France

*New growths*

2423 RANSOHOFF, JOSEPH; HOCHWALD, GERALD; & MARTIN, BOSTON F. Chemotherapy of primary malignant central nervous system tumors. *Annals of the New York Academy of Sciences*, 159(2):591-598, 1969.

Survival rates of patients with malignant brain tumors show that therapy with mithramycin compares favorably with other forms of treatment. Of the 55 patients treated with the drug, 47 harbored primary malignant gliomas, glioblastomas, or astrocytomas with marked anaplasia. Most patients received daily intravenous doses of 25 µg/kg in 1,000 cc of dextrose in water over 6-to 8-hour period. Thirty Ss received 20 mg or more of the drug. This treatment was in addition to radical tumor resection followed by radiation of 4,500-6,000 rads. Ten Ss are still alive 18 months later; 2 have lived for 3 years. (26 refs.) - *M. S. Fish.*

New York University - Bellevue Medical Center
New York, New York

2424 DALY, D.; KAYE, MICHAEL; & ESTRADA, ROBERTO L. Neurofibromatosis and hyperparathyroidism--A new syndrome? *Canadian Medical Association Journal*, 130(3): 258-259, 1970.

The simultaneous occurrence of neurofibromatosis and hyperparathyroidism in 2 adult patients suggests genetic linkage of these tumors and the existence of a whole related range of diseases. Only 1 other case is documented, in German literature. Neurofibromatosis has been previously linked with other neuroectodermal tumors, giving rise to the "neurocutaneous syndromes." The present 2 cases link tumors of different cell origin and resemble Sipple's syndrome. Patients with neurofibromatosis should be screened for hyperparathyroidism and associated diseases. Long-term follow-up could lead to early diagnosis of associated conditions. (14 refs.) - *S. Glinsky.*

Montreal General Hospital,
Montreal 109, Quebec, Canada

2425 WECHSLER, W.; KLEIHUES, P.; MATSUMOTO, S.; ZULCH, K. J.; IVANKOVIC, S.; PREUSSMANN, R.; & DRUCKREY, H. Pathology of experimental neurogenic tumors chemically induced during prenatal and postnatal life. *Annals of the New York Academy of Sciences*, 159(2): 360-408, 1969.

In the belief that classical, morphology-oriented neurooncology has come to an end, results obtained from experimental neurooncology are cited in an attempt to answer fundamental, unresolved questions regarding the etiology and pathogenesis of human neurogenic tumors. A large series of experiments were conducted by chemically inducing with N-nitroso compounds and ethylnitrosourea (ENU) tumors in rats, both prenatally and postnally. The tumors were generated by the local implantation of chemical carcinogens in various parts of the nervous system and by systemic extraneural administration of resorptive carcinogens with a high specificity for the nervous tissue. The results indicated occurrence of tumors at consistently preferred central and peripheral nervous system sites. The pathogenesis of the tumors showed them originating from single cells and advancing to microtumors and macrotumors, thereby confirming that anaplasia is an essential factor in this type of tumor morphogenesis. Additional parameters discussed include the dose-effect and time relationships for the carcinogenic action of N-nitro compounds, evaluation of the DNA synthesis and of the generation cycle, and some ultrastructural tumor cell characteristics. There were both differences and similarities in incidence, topography, and morphology in the comparison of naturally-occurring neurogenic tumors in man and of transplacentally produced tumors in rats. Both single and multiple chemical doses induced tumors in adult and fetal rats. This suggests the possibility of single or multiple contacts with an exogenous carcinogen inducing tumors in man. (80 refs.) - *S. Glinsky.*

Max-Planck-Institut fur Hirnforschung
Abteilung fur Allgemeine Neurologie
Cologne, Germany

2426 SCHULZ, R. A.; & HILDING, D. A. Nerve fiber growth and myelination in Von Recklinghausen eighth nerve tumor tissue. *Journal of Neuropathology and Experimental Neurology*, 29(1):105-118, 1970.

Irregular myelin sheaths with outfolded appendages have been reported, for the first time, associated with Von Recklinghausen tumor tissue. The patient, a 25-year-old male with a history of progressive bilateral hearing loss, had had removed previously multiple tumors on the body and a glioma from the left optic nerve. A left acoustic tumor, removed through a combined translabyrinthine approach, was examined by light and electron microscopy. The tumor had the characteristics of an eighth nerve Schwannoma except for the unusually large number of nerve fibers and the appendages of the myelin sheaths in the form of flaps which meandered through the Schwann cell cytoplasm. Similar appendages have been observed previously in toad cerebellum, normal guinea pig sciatic nerve, and in the central nervous system of young rats and mice but never before in tumors. New growth of nerve fibers and their myelin sheaths appears to be a more likely explanation of these findings than does the possible degeneration of fibers. The latter event is accompanied by heavy deposits of myelin, and these were absent in this tumor. (23 refs.) - *M. S. Fish.*

Yale University School of Medicine
New Haven, Connecticut 06510

2427 CHERNETSKIY, V. K.; & KANTOROVITCH, V. I. Nekotorye osobennosti ekstrapiramidnoy patologii pri opukholyakh golovnogo mozga u detey: Kliniko-morfologicheskoe issledovanie (Some features of extrapyramidal pathology in brain tumors in children: Clinico-morphological study). *Zhurnal Nevropatologii i Psikhiatrii*, 69(2):188-196, 1969.

In a clinical and histological study of 26 cases of primary brain tumors in children developing with extrapyramidal pathology, a correlation was established between hyperkinetic manifestations and the localization of the tumor, its structure, and the nature of primary and secondary lesions of the basal ganglia and brain stem, on the one hand, and the peculiarities of the child's brain, particularly the incomplete structural and functional differentiation of the cortex and subcortex and the tendency to motor hyperactivity and tonic reactions when these structures are affected, on the other. Tumors were located in the basal ganglia in 12 cases, at the bottom of the third ventricle in 4, in the brain stem in 5, and in the cortical hemispheres in 5. The clinical picture was dominated by superior stem and extrapyramidal disturbances together with a more or less marked thalamic syndrome, frequently with a pain component. In the early period of hyperkinesis, disturbances in muscle tone and attacks of tonic convulsions in the extremities were manifested. In the late period with the appearance of serious occlusive hydrocephalic symptoms, hyperkineses frequently disappeared in the contralateral extremities. Clinico-morphological comparisons showed that the development of hyperkinesis was significantly dependent upon secondary processes in the brain. The primary affection of thalamo-rubral, pallido-subthalamic, and negro-reticular structures with more expressed dystrophic changes of the myelin casings in these structures against a background of the incomplete and morphologically unformed myelination processes typical in childhood was particularly striking. The most expressed hyperkineses were noted in cases of durative non-malignant tumors and primarily in a complex but partial lesion of the ventrolateral thalamic nucleus, pallidum, subthalamus, and midbrain. (32 refs.) *B. J. Grylack.*

Otdel nevrologii Khar'kovskogo nauchno-issledovatel'skogo instituta nevrologii i psikhiatrii
Kharkov
Union of Soviet Socialist Republics

2428 PAGE, L. K.; ROSENTHAL, A. D.; MORAIN, W. D.; & SHILLITO, J., JR. Postnatal trauma: Subdural hematoma. In: Angle, Carol R.; & Bering, Edgar A., Jr., eds. *Physical Trauma as an Etiological Agent in Mental Retardation.* Washington, D.C., Superintendent of Documents, U.S. Government Printing Office, 1970, p. 267-270.

Of 120 cases of non-meningitic subdural hematomas (75 with no known trauma and/or skull fracture and 20 with a history of birth trauma) treated by membrane incision, 51 percent of the 86 followed for more than 5 years did well, 10 were EMR attending special classes, and 25 were uneducable. Subsequent MR was significantly related to atrophy at the time of surgery, but degree of membrane formation was not closely related to outcome. (8 refs.) *B. Berman.*

2429 RABE, EDWARD F. Definition and etiology of subdural hematoma in infants and children. In: Angle, Carol R.; & Bering, Edgar A., Jr., eds. *Physical Trauma as an Etiological Agent in Mental Retardation.*

Washington, D.C., Superintendent of Documents, U.S. Government Printing Office, 1970, p. 271-281.

Subdural fluid containing 23 to 350,000 rbc/$mm^3$ and 88 to 4300 mg% of protein in infants and children may result from head trauma, bacterial meningitis, pneumoencephalography, diarrhea, dehydration, convulsions, or, indeed, an unrecognizable precipitating event. In any event, chronic neurologic sequelae require examination of cause. Data derived from studying 87 patients from 5 months to 11 years after hospital discharge and 6 infants with subdural effusions have shown that outcome depends only on the antecedent event, even though subdural biopsy yields a similar microscopic picture. Brain pathology in infants dying with subdural fluid connections is that of the preceding event, in contrast to older children and adults; this requires treating symptomatic effusion manifestations, rather than the membrane or a symptomless effusion. If intramural pressure increases or a large subdural space develops, surgery is indicated. Otherwise, spontaneous remission of fluid follows careful management. (15 refs.) - *B. Berman.*

2430 BERRY, COLIN L.; KEELING, JEAN; & HILTON, CLARE. Coincidence of congenital malformation and embryonic tumours of childhood. *Archives of Disease in Childhood,* 45(240):229-231, 1970.

No significant relation between neoplasia and congenital malformation was found by examination of the records of 383 patients under 6 years of age. The number and types of malignancies and the number of corresponding associated malformations were: 96 teratomata, 8; 103 nephroblastoma, 7; 40 hepatoblastoma, 4; 144 neuroblastoma, 6. A number of the growth anomalies were found at operation or necropsy. Other malformations were clearly related to the presence of the tumor at birth. Five occult neuroblastomas were found in which death was associated with the concurrent malformation. If the incidence of malformations is adjusted to take into account tumor-related anomalies, no significant association is evident. (17 refs.) -*M. S. Fish.*

Institute of Child Health
30 Guilford Street
London W. C. 1, England

*Prenatal influence*

2431 PERLO, VINCENT P. Hydrocephalus with dementia. *New England Journal of Medicine,* 283(12):654-655, 1970. (Editorial)

Ventriculo-venous shunting results in remarkable improvement in patients with severe, progressive dementia secondary to normal-pressure hydrocephalus. This condition is characterized by normal cerebrospinal fluid pressure but a marked ventricular enlargement with decreased cerebrospinal fluid flow over the cerebral convexities. Pneumoencephalography and radioiodinated serum albumin brain scanning are the diagnostic procedures of choice. Decreased cerebral convexity flow must be demonstrated before surgery since patients with dementia and cerebral atrophy of other etiology do not respond to this treatment. (3 refs.) *E. L. Rowan*

No address

2432 NANCE, WALTER E. Anencephaly and spina bifida: a possible example of cytoplasmic inheritance in man. *Nature,* 224(5217): 373-374, 1969. (Letter)

Anencephaly and spina bifida are midline neurological defects which commonly occur together and in close relatives of probands; however, the occurrence of only 1 example of concordance among 125 twin pairs where one member had either malformation is inconsistent with chromosomal inheritance or environmental causation. Studies have continued to document an increased incidence of these malformations in matrilineal relatives of probands. It is known that the female contributes disproportionally to the cytoplasm of the zygote and, consequently, transmission of the defect *via* maternal cytoplasm rather than nucleic acid is postulated. (20 refs.) - *E. L. Rowan*

School of Medicine, Indiana University
Indianapolis, Indiana 46202

2433 WARBURG, METTE. Focal dermal hypoplasia: Ocular and general manifestations with a survey of the literature. *Acta Ophthalmologica,* 48(3):525-536, 1970.

The thirty-third reported case of focal dermal hypoplasia (FDH)--a severely retarded 38-year-old blind and deaf woman with no known family history of skin or mental disease--presented focal atrophies, skin telangiectasies and pig-

mentations, and fat herniations. Although she was ambulatory until age 9, she has been confined to bed since experiencing femoral fracture. She had always had severe MR and never learned to talk. Identical findings at ages 31 and 38 showed poorly developed secondary sex characteristics, lobster-claw foot and other malformations of extremities, a monstrous dorsal kyphosis, and microphthalmic eyes with bilateral colobomata of the irides and ectopia of both lenses. Her karyotype and amino acid levels were normal. In FDH, skeletal defects range from metacarpal shortening to severe camptodactyly, and scoliosis and microcephalus have been observed. The syndrome may be due to a teratologically active agent or a genetically determined trait. (39 refs.) *B. Berman.*

National Service for the Mentally Retarded
Lillemosegard, Copenhagen, Denmark

2434 EMERY, ALAN E. H.; & NELSON, MATILDA M. A familial syndrome of short stature, deformities of the hands and feet, and an unusual facies. *Journal of Medical Genetics,* 7(4):379-382, 1970.

The 24-year-old S (height 155 cm; weight 43.6 kg) with an IQ of 77 has small hands with flexion deformities of the first 3 metacarpophalangeal joints and extension deformities of the interphalangeal joints of both thumbs. All toes of her small feet are clawed, and there is a mild degree of pes cavus. Distinctive facial features are high forehead, depressed nasal bridge, long philtrum, and flattened malar regions. Characteristic clinical and radiographic features of various syndromes associated with short limbs were not observed. The S's mother, who died at age 26 of bronchopneumonia, closely resembled the S in appearance but, according to relatives, was very intelligent. This unique syndrome appears to be inherited as an autosomal dominant trait. The S's mother was presumably the result of a new mutation. (12 refs.) - *J. Moody.*

University of Edinburgh
Dept. of Human Genetics
Edinburgh 8, Scotland

2435 EMERY, A. E. H.; TIMSON, J; & WATSON-WILLIAMS, E. J. Pathogenesis of spina bifida. *Lancet,* 2(7626):909-910, 1969. (Letter)

Previous observations that the occurrence of spina bifida and anencephaly may be related to folic acid deficiency were not confirmed in a comparison of serum folic acid levels between parents of children with spina bifida and/or anencephaly with normal controls. The results showed no significant differences between the groups. (11 refs.) - *M. S. Fish.*

Western General Hospital
Edinburgh 4, Scotland

2436 GELLIS, SYDNEY S.; FEINGOLD, MURRAY; GAREIS, FRANK J.; & DOOLEY, RICHARD R. Picture of the Month: Prader-Willi syndrome. *American Journal of Diseases of Children,* 120-(1):49-50, 1970.

The major manifestations of the Prader-Willi syndrome are obesity, short stature, hypogonadism, hypotoma, mild to moderate MR, and a possible history of intrauterine inactivity. Other symptoms include poor sustenance reflexes, typical facial features, genital abnormalities, hyperphagia, diabetes mellitus, skeletal abnormalities, and dental defects. No inherited genetic pattern has been demonstrated and there is no specific treatment beyond special schooling, genetic counseling of the family, and treatment of diabetes upon its occurrence. (4 refs.) - *S. Glinsky.*

Boston Floating Hospital,
Boston, Massachusetts 02111

2437 GELLIS, SYDNEY S.; FEINGOLD, MURRAY; & GORLIN, ROBERT. Picture of the month: Oral-facial-digital syndrome. *American Journal of Diseases of Children,* 120(3):241-242, 1970.

The major manifestations of the oral-facial-digital syndrome include pseudocleft of the upper lip, shortened alar cartilage and columella, lateral migration of the inner canthi, frontal bossing, cleft palate, thickened hyperplastic frenula transversing the mucobbuccal sulcus, malpositioning of teeth, lobulated tongue, missing digits, and syndactyly. Mild MR occurs in about one-third of the patients. The syndrome is inherited as an X-linked dominant trait limited to females and lethal in males. Dental and skeletal abnormalities can be corrected, and special schooling is recommended. (3 refs.) - *S. Glinsky.*

Boston Floating Hospital,
Boston, Massachusetts 02111

2438 GELLIS, SYDNEY S.; FEINGOLD, MURRAY; DIEHL, ANTONI M.; & FUNDERBURK, STEVEN. Picture of the month: Linear nevus sebaceous syndrome. *American Journal of Diseases of Children,* 120(2):139-140, 1970.

The major manifestations of the linear nevus sebaceous syndrome are sebaceous nevi, seizur-

es, and MR. Skin lesions are present at birth and are formed on the forehead and extend to the tip of the nose. Abnormalities include malformation of the skull, eyes, nose bridge, mouth, teeth, and the aorta (coarctation and hypoplasia). Such patients usually die. Retardation is moderate to severe and generalized seizures occur frequently. Although both sexes are affected only sporadic cases have occurred. Treatment may include proper medication to control seizures and correction of the cardiac defects. (3 refs.) - *S. Glinsky.*

Boston Floating Hospital,
Boston, Massachusetts 02111

2439 HANISSIAN, ARAM S.; FUSTE, FEDERICO, HAYES, W. T.; DUNCAN, JERALD M. Mobius syndrome in twins. *American Journal of Diseases of Children,* 120(5):472-474, 1970.

The first reported case of male twins with Mobius syndrome and complete postmortem studies are presented. The first twin, who died 3 hours after birth of respiratory failure, exhibited abnormalities of the skull, neck, all joints, thorax, and thoracic spine. Necropsy findings showed multiple abnormalities in the lungs, central nervous system, and kidneys. The second twin had skull asymmetry, lack of expression during crying, a poor sucking reflex, and poor reaction to light, abnormalities of the chest, thorax and spine, and flexion contractions at all joints. His lungs, heart, and abdomen were normal. The defects encountered in these cases were in several elements of the motor unit. The results indicated that the Mobius syndrome might result from nuclear dysplasia or agenesis with or without an intact nerve trunk or from intact nuclei with dysplastic or aplastic nerve trunk. A final possible cause is a pure effector organ (muscle) dysplasia with an intact nucleus and nerve trunk. (19 refs.) - *S. Glinsky.*

University of Tennessee College of Medicine
Memphis, Tennessee 38103

2440 COBURN, THOMAS P. G syndrome. *American Journal of Diseases of Children,* 120(5):466, 1970.

An 11-week-old infant, a product of a full-term, uncomplicated pregnancy with forceps delivery, presented with a defective swallowing mechanism, hypertelorism, hypospadias with descended testes, and abnormally-oriented ears, all of which are consistent with the G syndrome. Chest roentgenogram and barium swallowing indicated pulmonary infiltrate, emphysema and incoordination of swallowing associated with rather massive aspiration. The clinical features of this patient compare with those of a family of 4 brothers and provide support for the concept of the G syndrome as a distinct entity. (1 ref.) - *S. Glinsky.*

Children's Hospital
Cincinnati, Ohio 45229

2441 Birth defect is often case of double jeopardy. *Medical World News,* 10(7):28, 30, 1969.

There is evidence that childhood cancers appear with increased frequency in individuals who were born with congenital defects. Children with excessive chromosomal fragility, as in Bloom's and Fanconi's syndromes, children exposed to ionizing radiation or benzene, and those with Down's syndrome represent cases where leukemia is more prevalent. Lymphoma has been shown to be associated with increased incidence of congenital defects of the immunological system, such as agammaglobulinemia, myasthenia gravis, ataxia-telangiectasia, familial granulomatosis, and congenital agranulocytosis. Congenital hemihypertrophy carries an increased risk of Wilms' tumor, adrenocortical neoplasia, and primary hepatic cancer. Through identification of congenital defects, doctors are able to isolate high risk patients and to achieve early diagnosis and treatment of certain childhood cancers. (No refs.) - *B. J. Grylack.*

2442 The needs of spina bifida children. *Special Education,* 58(3):12, 1969.

For England and Wales, the estimated average incidence rate of spina bifida (with or without hydrocephalus) is 1.73/1,000 live births. Based on this figure, there may be 1,500 spina bifida live births each year. Although only 28% of such children born in 1963 will have survived into their fifth year, the number of surviving babies is increasing. Yearly, approximately 600 spina bifida children in England and Wales will reach school age. (No refs.) - *C. L. Pranitch.*

2443 MILLER, JAMES R.; & POLAND, BETTY J. The value of human abortuses in the surveillance of developmental anomalies: II. Reduction deformities of the limbs. *Canadian Medical Association Journal,* 103(5):503-505, 1970.

The reduction deformities and spinal rachischisis of aborted specimens were studied to determine the pattern of occurrence of other anomalies. Over a period of 4 years, 498 abortions and 223 abnormal specimens indi-

cated a sharp increase (p=.05) in the occurrence of reduction deformities during 1968-69. Spinal rachischisis showed no corresponding increase. The detectable increase in limb reduction, although not identified as to cause, supports the thesis that embryo and fetus study provides important supplementary data in detecting increases in the frequency of developmental anomalies. (No refs.) - *S. Glinsky.*

University of British Columbia
Vancouver 9, British Columbia, Canada

2444 MORGAN, BEVERLY C.; AASE, JON M.; & GRAHAM, C. BENJAMIN. Homozygosity for achondroplasia? Report of a possible case, with congenital heart disease and severe mental deficit. *Pediatrics,* 45(1): 112-115, 1970.

A rare case presented with achondroplasia, severe cyanotic congenital heart disease, and marked MR. Both parents of the patient, a 3-year-old white male, had true achondroplasia. The patient died at 3 years of age, and an autopsy examination revealed achondroplasia, congenital heart disease, jejunal volvulus, and bilateral massive cerebral infarctions. These conditions could represent a chance association or be the result of homozygosity for the gene for true achondroplasia. (8 refs.) - *S. Glinsky.*

University of Washington
Seattle, Washington 98105

2445 MILHORAT, THOMAS H. Acute hydrocephalus. *New England Journal of Medicine,* 283(16):857-858, 1970.

A largely unrecognized and possibly important clinicopathological entity may result from sudden and complete obstruction of the cerebrospinal-fluid pathways. A 9-year-old boy with prior normal-sized ventricles suffered a spontaneous hemorrhage into a midline cerebellar mass and acute hydrocephalus ensued. This case suggests that acute hydrocephalus often is not detected due to the primary lesion obscuring clinical evidence of acute ventricular enlargement. Diagnosis requires suspicion of the condition and prompt confirmation by definitive tests. Acute hydrocephalus may be a possible complication of many conditions including acute head injury, acute exudative meningitis, hemorrhages, and sudden decompensation of tumors bordering the ventricular system. (20 refs.) - *S. Glinsky.*

National Institutes of Health
Bethesda, Maryland 20014

2446 GUTHKELCH, A. N. Occipital cranium bifidum. *Archives of Disease in Children,* 45(239):104-109, 1970.

A follow-up survey of 74 cases (69% female) of occipital cranium bifidum (born and treated between 1948-1965) revealed normal mental development in 86% with cranial meningocele and 40% with encephalocele cases, if no hydrocephalus was present. Introduction of surgery for cases with hydrocephalus complications (more common when the sac had contained brain tissue than in meningocele cases) influenced survival rates considerably, but even in these cases, many children were mentally (some physically) damaged. Surgical intervention was most urgent in spina bifida with open myelomeningocele lesion and less urgent in closed spina bifida and cranial meningocele and encephalocele. Repair of the latter 2, at times, precipitated acute intracranial tension with rapid head expansion. In general, survival with normal intelligence was more frequent when eventual head size was within normal limits. In all cases, the proportion of normally intelligent survivors was notably less in the hydrocephalic group. (7 refs.) - *B. Berman.*

Hull Royal Infirmary
London, England

2447 BARSON, A. J. Spina bifida: The significance of the level and extent of the defect to the morphogenesis. *Developmental Medicine and Child Neurology,* 12(2):129-144, 1970.

Examination of 601 spina bifida infants (all examined radiologically; 50 by post-mortem dissection) demonstrated that the location of the bony laminar and pedicular malformations determines the amount of dysraphia and neurologic damage and prognosis and provides a morphogenic basis for dividing Ss into "major" (more than 5 dysgraphic vertebrae) and "minor" (less than 5) defects. Radiographic examination showed the precise level at which the bony spinal dysraphia occurred; its incidence was lowest in the lower cervical area, slightly higher in cranial segments, and notably increased in the vertebral segments, especially from the lower thoracic to the sacral region. Ectodermal defects were most common in the lumbar region but usually were more localized than mesoderm defects. Neuroectodermal malformations showed small occipital defects associated with cortical protrusions. An occurrence at the thoracolumbar junction inevitably resulted in major malformations, frequently displaying kyphotic deformity involving all lumbar vertebrae. Arbitrary division into

major and minor cases has clinical, pathological, and embryological meaning. (23 refs.) *B. Berman.*

University of Manchester
Manchester, England

2448 daFONSECA, LUCIA G.; & FREIRE-MAIA, NEWTON. Congenital malformations of the limbs. *Lancet,* 1(7637):90-91, 1970. (Letter)

A study of 21 families (identified by letters to physicians and other authorities) with members showing single or multiple skeletal limb defects confirmed the conclusion that simple genetic mechanisms play only a small role in such deficiencies. In 19 families, there were 22 sibships showing 23 limb malformation cases; in all but 1 sibship, there were no consanguineous marriages. There was no evidence of thalidomide causation. Autosomal genes may have been responsible for defects in the 2 remaining families--1 presented split hands and feet in 3 generations; the other included a girl with split feet associated with hand defects (syndactyly and polydactyly). (9 refs.) - *B. Berman.*

Federal University of Parana
Curitiba, Parana, Brazil

2449 KNOX, E. G. Fetus-fetus interaction--A model etiology for anencephalus. *Developmental Medicine and Child Neurology,* 12(2): 167-177, 1970.

Analysis of the capacity of a diallelic sex-linked fetus-fetus interaction model found it insufficient to explain the sex ratios of anencephalus and spina bifida, twin data, familial concentration, and concordance within sibships of deformity types. The predicted F:M ratio was not consonant with the observed ratio, and although discordant patterns and frequency of like-sexed pairs in twins were predicted successfully, additional parameters were needed to predict exact pair-type distribution. Familial risks in first-affected fetuses were predicted but not risks occurring after a second-affected fetus. Uncomfortable compromises were evident between the different predictions. A multiple allele or multiple-locus system might ameliorate the problems but would impose too many rigors. (11 refs.) - *B. Berman.*

Medical School
Edgbaston, Birmingham, England

2450 WILLIAMSON, D. A. J. A syndrome of congenital malformations possibly due to maternal diabetes. *Developmental Medicine and Child Neuorology,* 12(2):145-152, 1970.

A review of the literature on association between maternal diabetes and certain congenital defects suggests a syndrome reflecting common reduction leg defects with or without agenesis of lower spinal segments. Maternal diabetes was observed in most cases of caudal regression; the latter was accompanied by many other abnormalities. There is little primary evidence of how maternal diabetes influences early fetal growth, but it is possible that there are overt clinical signs of diabetes not of themselves embryopathic and that more fundamental causations exist. Elevated insulin-antagonist levels found in serum of mothers of infants with certain malformations (spina bifida, cleft lip or palate, and arm or hand deformities) may demonstrate essential diabetes in these women. (35 refs.) - *B. Berman.*

Southampton Children's Hospital
Southampton, England

2451 WEHRUNG, DONALD A.; & HAY, SYLVIA. A study of the seasonal incidence of congenital malformations in the United States. *British Journal of Preventive & Social Medicine,* 24(1):24-32, 1970.

In an analysis of the seasonal variation in congenital malformations between 1962 and 1965 in 29 states and 2 cities in the United States, cleft lip with or without cleft palate, hypospadias, and positional foot defects evidenced significant seasonal trends. Seasonal analyses were not significant for anencephaly, spina bifida, hydrocephaly, congenital heart disease, anorectal defects, polydactyly, syndactyly, reduction deformities, or Down's syndrome. The sample was composed of 10,000 cases of cleft lip and/or cleft palate, approximately 86,000 cases of congenital malformations and a control group of 90,000 live births from the same registration area. Cleft lip and/or cleft palate showed a seasonal trend for the entire area which peaked in March. In the hot summer-moderate winter region, January was the month of maximum incidence. April was the month of maximum incidence for hypospadias over the entire region; March was the maximum for positional foot defects. Regions with the largest numbers of cases were hot summer-cold winter and hot summer-moderate winter. (17 refs.) -*J. K. Wyatt.*

National Institutes of Health
San Francisco, California

2452 SHAH, CHANDRAKANT V.; PRUZANSKY, SAMUEL; & HARRIS, WILLARD S. Cardiac malformations with facial clefts: With observations on the Pierre Robin syndrome. *American Journal of Diseases of Children,* 119(3):238-244, 1970.

In a survey of 191 patients with cleft lip and/or cleft palate, the incidence of congenital heart disease was 1.3% among 150 living patients and 67% among 32 deceased patients. The majority of deceased patients had died prior to 6 months of age. Of 9 living patients (CA 1-19 yrs) with facial clefts and cardiac anomalies, 3 were MR. Other major abnormalities presented by deceased patients were: anencephalus and encephalocele (1 case); brain malformation (3 cases); trisomy 18 (2 cases); microcephaly (1 case); hyaline membrane disease and polycystic kidneys (1 case); hydrocephaly (1 case); and microgyria, schizencephaly, hypoplasia of pons, agenesis of orbits and bulbs bilaterally, absence of the left middle and inner ear, microtia left, cleft maxilla, skull deformity, and absence of pituitary gland (1 case). The frequency of congenital heart defect was greater for girls and greatest with cleft palate alone, next greatest with cleft lip and cleft palate, and least with cleft lip alone. None of the 31 Ss with cleft palate and congenital heart disease demonstrated transportation of the great vessels. Since the heart and palate do not develop at the same time, it seems likely that cardiac anomaly may be caused by teratogenic action which either persists or recurs to cause cleft palate or by a variability in the developmental timetable. (24 refs.) - *J. K. Wyatt.*

University of Illinois at the Medical Center
Chicago, Illinois 60680

2453 Birth defect catalogue: From 14,000 embryos, some useful data on early fetal malformations. *Medical World News,* 11(2):48S, 1970.

The incidence of birth defects in Japan was investigated in 13,850 conceptuses obtained by induced abortion or delivery. The majority of the conceptuses were the products of healthy pregnancies terminated for socioeconomic reasons. There were 13,350 conceptuses from 3 to 8 weeks old and 500 aborted between 8 and 18 weeks after conception. Incidence of many types of abnormalities was higher in these embryos and fetuses than in infants. Overall prevalence of externally malformed embryos reached a maximum of almost 5% by the last embryonic stage. Among the abnormalities which appeared more frequently in embryos and fetuses than in infants were anencephalia, myeloschisis, embryonic hydrocephalus, hydromyelia, cyclopia, cebocephalia, polydactyly, hermaphroditism, and cleft lip. The rate of chromosomal aberrations was much higher (2.9%) for embryos than for newborns (0.7%). Abnormalities appeared more frequently in the presence of a single umbilical artery or in mothers who had a history of genital bleeding during pregnancy. Season of conception, parental age, systemic maternal disease, and uterine myoma did not seem particularly associated with malformed conceptuses. (No refs.) - *J. K. Wyatt.*

2454 PALO, J.; IIVANAINEN, M.; BLOMQVIST, K.; & PESONEN, S. Aetiological aspects of the cutis verticis gyrata and mental retardation syndrome. *Journal of Mental Deficiency Research,* 14(1):33-43, 1970.

Fourteen patients (including 2 females) with cutis verticis gyrata (corrugated scalp) and severe MR were investigated endocrinologically and neurologically. No adrenal or pituitary dysfunction was found. Pneumoencephalography was abnormal in all cases with both infratentorial (cerebellar hypoplasia or atrophy and narrowed posterior fossae) and supratentorial (micro- or macro-ventriculy) anomalies found. Previously reported endocrine dysfunction may have resulted from compression of the hypothalamo-hypophyseal tract. The syndrome appears to be the result of some unknown constitutional inferiority. (11 refs.) - *E. L. Rowan.*

University of Helsinki
Helsinki 29, Finland

2455 ILLINGWORTH, R. D. Subdural haematoma after the treatment of chronic hydrocephalus by ventriculocaval shunts. *Journal of Neurology, Neurosurgery and Psychiatry,* 33(1):95-99, 1970.

Of 10 cases of subdural hematoma occurring after insertion of a ventriculocaval shunt to relieve chronic hydrocephalus, 5 patients died or became disabled and 5 recovered. Eight of the 10 patients who developed subdural hematomas were from a total of 175 consecutive patients in whom the valve was inserted and who were seen over a 10-year period. Two other patients were not of this particular series. The initial diagnoses of the 10 patients were 5 with aqueduct stenosis, 4 with communicating hydrocephalus, and 1 with hydrocephalus (Dandy-Walker syndrome). Ages of the patients, 7 males and 3 females, ranged from 2 1/2 years to 66 years, and the interval between the insertion of the shunts (Holter or Pudenz) and the onset of the symptoms of subdural hematoma ranged between 15

days and 3 months for 8 of the patients. The ninth patient had symptoms appearing 2 1/2 years after valve insertion but 5 weeks after lengthening of the caval catheter. A unilateral subdural hematoma was found in the tenth patient 7 months after valve insertion and bilateral subdural hygromas 2 years after insertion. Symptoms of the 10 patients included drowsiness, headaches, convulsions, and comas. Hematomas were evacuated through burr holes, and the subdural spaces were tapped daily until dry. In 7 patients, the shunt tubing was clamped or tied in order to help the brain expand and obliterate the subdural cavity. Insertion of a ventricular drain to control ventricular pressure was usually required during the period that the shunt was closed. The 3 patients who died were comatose at the time of diagnosis. Of 2 patients who were severely demented before the shunt operation, one developed moderate hemiparesis and severe dysphasia and died 18 months later, and the other developed severe hemiparesis. The insertion of a ventriculocaval shunt for treatment of chronic hydrocephalus appears to incur some risk for the development of subdural hematomas. The intracranial pressure after insertion of the shunt and the proper pressure for drainage appear to be important. (11 refs.) - *M. S. Fish.*

National Hospitals for Nervous Diseases
Queen Square and Maida Vale
London, England

2456 PATZER, H.; BENDEL, B.; BUTTENBERG, H.; & ORN, S. Beitrag zur Schadelmetrik kindlicher Turmschadel--Eine Auswertung von 200 Rontgenaufnahmen (A contribution to skull measurements in infantile oxycephaly--An evaluation of 200 radiographs). *Zeitschrift fur Kinderheilkunde,* 104:61-71, 1968.

Radiography was carried out on 253 children with normal skulls and 100 children with oxycephaly. Two dimensional skull measurements were made by employing the 9 straight dimensions and 5 angular readings of Bergerhoff & Hobler as well as Schmid and Filthuth to the radiographs. Classification of the measurements according to ages 0 months to 14 1/2 years indicated a great number of oxycephalics in the younger ages but only 5 cases between 10 1/2 and 14 1/2 years. Characteristic oxycephalic changes were a shortened upward slope of the anterior base of the skull, growth increase in skull height, flattening of the occiput, decrease of the bitemporal diameter, and reduction in the curvature of the vertex. Radiographic skull measurement assesses the degree of pathological change, permits an exact following of the disease course, and indicates that oxycephaly is a complex, embryonically determined skull malformation. (24 refs.) - *S. Glinsky.*

Kinderklinik der Medizinischen Akademie
Am Schwemmbach 32a
X-50 Erfurt, East Germany

2457 ILLIG, RUTH. Immunologisch bestimmbares Insulin und Glukosetoleranz beim Prader-Labhart-Willi-Syndrome (Immunologically determinable insulin and glucose tolerance in the Prader-Labhart-Willi syndrome). *Schweizerische Medizinische Wochenschrift,* 98(19): 723-724, 1968.

Eight of 22 patients exhibiting the Prader-Labhart-Willi syndrome were immunologically tested for glucose and insulin tolerance. The 8 Ss were aged 12 to 22 years and received orally 50 g of glucose/square meter of body surface. Tests before and after glucose administration indicated 2 groups: one group of 4 patients exhibited insulin resistance with a diabetic glucose curve and an initially low and then excessive insulin excretion; the second group demonstrated insulin hypersensitivity with nominal insulin levels and a normal or subnormal glucose curve. These data as well as results from the literature suggest that patients with a normal glucose tolerance and insulin hypersensitivity could exhibit the early form of this metabolism disturbance, with glucose intolerance, hyperinsulinism, insulin resistance, and diabetes appearing at advanced stages. Certain analogies with genetically corpulency-prone mice also obtain. (1 ref.) - *S. Glinsky.*

Kinderspital
Steinwiesstrasse 75
CH-8032 Zurich, Switzerland

2458 FRASER, W. I.; & MacGILLIVRAY, R. C. A case of cervico-oculo-acoustic dysplasia (the syndrome of Wildervanck). *Journal of Mental Subnormality,* 16(30): 29-32, 1970.

A 28-year-old dwarfed, MR female with Wildervanck's syndrome gives further understanding of this dysplasia and throws light on the 20% apparent Turner's chromatin-positive syndromes. S was a normal, full-time delivery child who had no history of teratogenic agents or toxic conditions during the first trimester. Early development was normal, but at school, she was found uneducable and, at age 9, was institutionalized. Recent psychometric testing gave an IQ of 44. S showed normal karyotype and tomographic variations. A strikingly low human growth hormone (HGH) level suggests a genetically deficient HGH

polypeptide as an aspect of this condition. (6 refs.) - *B. Berman.*

Lennox Castle
Glasgow, Scotland

2459 MOORE, MARY VIRGINIA. Speech, hearing, and language in de Lange syndrome. *Journal of Speech and Hearing Disorders,* 35(1):66-69, 1970.

Children with de Lange's syndrome (a multifaceted pathology) present delayed language development accompanied by MR and hearing loss. Afflicted children display a characteristically grim, mask-like countenance, growth failure, abnormally small limbs with frequent anomalies, and low-set ears. Frequently referred to a speech and hearing clinic, the patient displays specific speech-mechanism defects and language disability commensurate with his MR. The voice has a low-pitched, growl-like quality and hearing sensitivity shows high- and low-frequency losses. MR and hearing loss, buttressed by familial reaction and environmental deprivation, account for the profound language delay. Individual variations in types and degrees presented by this pathology (reported incidence of 1/10,000) require an individualized approach to each patient. (9 refs.) - *B. Berman.*

Auburn University
Auburn, Alabama

2460 MACK, JILL; MASTERS, PETER; & HOCKEY, ATHEL. Lowe's syndrome. *Australian Journal of Mental Retardation,* 1(3):89-93, 1970.

Four cases illustrate the main features of Lowe's syndrome including dwarfism, hypotonia, cryptorchidism, bone disease (osteomalacia and rickets), aminoaciduria, and renal acidosis. Inability of the renal tubules to control acid-base balance (tested by bicarbonate loading) caused the metabolic acidosis. In 2 cases, the parents received genetic counseling and instruction in carrier detection. (3 refs.) - *B. Berman.*

Princess Margaret Hospital
Perth, Western Australia,

2461 ENGEL, PETER. Could this be a new syndrome? Report of seven cases with characteristic mental and physical degeneracy. *Developmental Medicine and Child Neurology,* 12(3):282-289, 1970.

In the past 5 years, 7 children at the Rudolf Steiner Schools for the handicapped (Aberdeen, Scotland) have manifested a consistent combination of mental and physical defects which may constitute a new syndrome. All cases had a similar history and shared many characteristic features, including lethargy in early infancy, relatively short neck, stigmata of degeneracy, fairly coarse hair, a broad nose, and thick lips. Severe myopia was present in 6 cases. The typical postural lordosis was noted many times a day. All cases manifested clumsiness; however, no gross neurological abnormalities were found. Several of the most striking features of this syndrome are the wringing of the hands displayed during distress or boredom and the frantic rubbing of the palms under conditions of excitement. The abnormal sleep rhythm is a very troublesome symptom and was overcome by most of the children only in adolescence. All cases were characterized by very late bladder control, IQs between 50 and 75, and a gruff voice which does not change with age. Reading ability was the most advanced scholastic achievement. The majority of the cases showed lethargy in early infancy, then became uncooperative and stubborn, and later placed excessive demands on adults. Subsequently, they became socially acceptable despite their symptomatology. (No refs.) *B. J. Grylack.*

Camphill-Rudolf Steiner Schools
Aberdeen, Scotland

2462 MICHAELIS, R.; SCHULTE, F. J.; & NOLTE, RENATE. Motor behavior of small for gestational age newborn infants. *Journal of Pediatrics,* 76(2):208-213, 1970.

A comparison of the quality of complex motor phenomena in 22 small-for-gestational-age, at-term infants and 25 normal-weight, term infants revealed many more abnormalities in the small (below the fifth percentile) group. As a group, the small infants showed marked extension and adduction followed by weak flexion and abduction on the Moro response, marked asymmetric tonic neck reflex, frequent windmill motions of the arms, poor head lifting and turning, poor stepping movements, and poor standing on full sole. These responses were independent of gross neurological findings; the reason for this immaturity is as yet unexplained. (20 refs.) *E. L. Rowan.*

Kinderklinik der Universitaet Gottingen
34 Gottingen
Humboldt-Allee 38, Germany

2463 SCHMIDT, RINA; ALKAN, W. J.; MOSES, SHIMON W.; MUNDEL, GEORGE; & ROIZEN, SHULAMITH. A clinical entity simulating

familial dysautonomia in a North African Jewish family. *Journal of Pediatrics*, 76(2):283-288, 1970.

Two sisters, aged 16 and 8, of Sephardic Jewish origin display a syndrome similar to the familial dysautonomia syndrome of Riley and Day which is most commonly found in Ashkenazi Jews. Their features of ophthalmic lesions, decreased lacrimation, vasomotor disturbances, dysarthria, ataxia, and hypotonia are characteristic of familial dysautonomia, but their profound MR, normal taste sensation, and fungiform papillae on the tongue, normal histamine response, and normal vanillylmandelic acid excretion are not. These girls are products of a consanguineous marriage and probably represent a genetically determined syndrome which may be different from familial dysautonomia. (20 refs.) - *E. L. Rowan.*

Asaf Harofe Government Hospital
Zrifin, Israel

2464 PASHAYAN, H.; PINSKY, L.; & FRASER, F. C. Hemifacial microsomia: Oculo-auriculo-vertebral dysplasia: A patient with overlapping features. *Journal of Medical Genetics*, 7(2):185-188, 1970.

Description of a girl with features of both the hemifacial microsomia syndrome and the oculo-auriculo-vertebral dysplasia syndrome suggests that both may be variants of the same dysmorphogenetic entity. Bilateral colobomata, anti-mongoloid slant, microphthalmia, frontal bossing, microtia, deficient external auditory meatus, pre-auricular skin tags, and slight MR are associated with oculo-auriculo-vertebral dysplasia. Unilateral facial hypoplasia and microtia in the absence of epibulbar dermoids and vertebral anomalies are suggestive of hemifacial microsomia. That the parents of this child are first-cousins gives weight to a genetic mode of transmission, but the exact etiology is unknown. (13 refs.) - *E. L. Rowan.*

Montreal Children's Hospital
Montreal, Canada

2465 AVERY, GORDON B.; MILHORAT, THOMAS H.; GRIFFIN, PAUL P.; ENG, GLORIA D.; & RANDOLPH, JUDSON. Meningomyelocele and hydrocephalus. *Clinical Proceedings of Children's Hospital of the District of Columbia*, 26(5):135-151, 1970.

The management of an infant with meningomyelocele and hydrocephalus requires the cooperation and coordination of neurosurgical, orthopedic, rehabilitative, and urological services. Early neurosurgical intervention is indicated to preserve nervous system function, prevent infection, and expedite nursing care. Shunting is necessary if hydrocephalus is demonstrated on ventriculography. The orthopedic focus is on muscle imbalance and its effect on the contour and function of the bones and joints of the lower extremities. Physiatry is concerned with range of motion exercises and the instruction of paraplegics in walking. Urology is charged with effective, infection-free, socially-acceptable bladder and bowel control. A large proportion of patients so treated may become competitive adults, although indications are that about one-third show MR despite treatment. (No refs.) - *E. L. Rowan.*

Children's Hospital
Washington, D.C. 20009

2466 KHAN, M.; ROZDILSKY, B.; & *GERRARD, J. W. Familial holoprosencephaly. *Developmental Medicine and Child Neurology*, 12(1):71-76, 1970.

The occurrence of holoprosencephaly in 4 of 6 siblings suggests the possibility of a genetic etiology. Three of the 4 Ss, 2 of them non-identical twins, had involuntary athetoid movements, opisthotonos and increased muscle tone, and were MR. The fourth was a stillborn hydrocephalic who was also believed to have had a holoprosencephaly. Autopsy of 1 of the twins who died at 4 years 8 months from meningitis revealed fused cerebral hemispheres and the absence of the parietal and occipital parts and of the olfactory bulbs and tracts. Pneumoencephalography of the other 2 showed absence of the septum pellucidum and a common ventricle formed from the lateral ventricles. Mental development of 2 of the patients was 4-6 weeks at the age of 3 1/2 years. The third S had reached the mental age of 3 months at 18 months of age, and at age 7 months, the EEG had begun to show epileptiform activity. All relatives of the mother and father were normal except for a slightly MR son of the father's non-identical twin brother. (18 refs.) -*M. S. Fish.*

*University Hospital
Saskatoon, Canada

2467 HANSSON, O. Hydrocephalus and 5-hydroxyindoleacetic acid in the CSF. *Developmental Medicine and Child Neurology*, 12(1):103-104, 1970. (Annotation)

The level of 5-hydroxyindoleacetic acid (5-HIAA) and the cerebrospinal fluid (CSF) may be a useful index in the study of hydroceph-

alus. Investigation of 5-HIAA levels in the CSF of hydrocephalic children and controls has shown that normal levels are higher in the CSF of the lateral ventricles than in either the cisterna magna or lumbar CSF; however, lumbar CSF levels of 5-HIAA are raised in communicating hydrocephalus but are lowered in non-communicating cases. Insertion of a ventriculo-atrial shunt in hydrocephalic children causes levels of the acid to fall in the ventricular CSF, but the levels rise again if the shunt ceases to function. Since levels are normal in non-progressive or slowly progressive communicating hydrocephalus, operation may be indicated when the levels begin to rise in such cases. Studies with normal and kaolin-induced hydrocephalic dogs have indicated that decreased elimination of 5-HIAA from the CSF is responsible for the increased levels in hydrocephalus rather than an increase in the concentration of 5-hydroxytryptamine (serotonin), the metabolic precursor of 5-HIAA. (5 refs.) -*M. S. Fish.*

University Hospital
Uppsala, Sweden

2468 GRUNT, JEROME A.; & REYNOLDS, DAVID W. Insulin, blood sugar, and growth hormone levels in an anencephalic infant before and after intravenous administration of glucose. *Journal of Pediatrics,* 76(1):112-116, 1970.

A metabolically active brain may contribute significantly to glucose consumption in the newborn infant. A full-term male infant, known to be anencephalic at the seventh month of pregnancy, was born with a cleft palate and poorly developed genitalia and developed myoclonic jerks at 10 hours after birth. With the clinical condition deteriorating, the patient died at 50 hours. Autopsy revealed a very small amount of brain tissue which was abnormal, small and congested adrenal glands, a pituitary gland comprised of only a small segment of the anterior lobe, and congested liver. Throughout the life of the S, determinations were made of fasting blood sugar and serum growth hormone and insulin. Two glucose tolerance tests were run at 10 and 34 hours. Blood sugar levels remained markedly high throughout the life of the S. Growth hormone levels were low but the material was produced endogenously since levels rose from 2 to 10 μg/ml between 10 and 34 hours. KT values for insulin tolerance at 10 and 34 hours were 1.7 and 1.6%/minute, respectively, compared with 1.03%/minute for normal infants. (19 refs.) -*M. S. Fish.*

Yale University School of Medicine
New Haven, Connecticut 06510

2469 BEJAR, RAPHAEL L.; SMITH, GEORGE F.; PARK, SUNGMIN; SPELLACY, WILLIAM N.; WOLFSON, SORRELL L.; & *NYHAN, WILLIAM L. Cerebral gigantism: Concentrations of amino acids in plasma and muscle. *Journal of Pediatrics,* 76(1):105-111, 1970.

The glycine:valine ratio may be useful in distinguishing abnormal growth patterns. Two Ss, a 4-month-old Negro male and a 26-month-old Caucasian female, had advanced linear growth, skeletal maturation, dermatoglyphic abnormalities, and MR. Measurement of amino acid levels in blood, muscle, and urine indicated that concentrations of the branched amino acids (valine, isoleucine, and leucine) were markedly higher than those of controls. The levels of these particular amino acids are known to be elevated in normal Ss during periods of rapid growth. Ratios of alanine or glycine to the branched chain amino acids differed as much as 2-fold when compared with normal ratios, and the differences in glycine:valine ratios between the Ss and controls were 4-fold. Growth hormone levels were within normal limits. Results suggest that glycine:valine ratios may be useful in the assessment of both normal and abnormal growth. The dermatoglyphic patterns of both Ss and the family history of 1 S suggest a genetic basis for the disease. (22 refs.) -*M. S. Fish.*

*University of California, San Diego
La Jolla, California 92037

2470 HOEFNAGEL, D.; WURSTER, D.; POMEROY, J.; & BENZ, R. The Smith-Lemli-Opitz syndrome in an adult male. *Journal of Mental Deficiency Research,* 13(4):249-257, 1969.

The first reported adult case of the Smith-Lemli-Opitz syndrome is described. The S, a PMR 20-year-old male (height 55 1/2 in; weight 72 lb), was found to have a small maxilla with marked displacement of the teeth, small feet with marked metatarsis adductus, a narrow chest, no axillary or facial hair, and markedly under-developed genitalia. Laboratory tests, mostly in the normal range, showed testosterone levels to be about one-tenth of the normal value. Radiologic studies revealed a small cranial vault and calcified but unfused epiphyses. Biopsy of a testicle showed in a few tubules large polyhedral cells containing densely packed eosinophilic and PAS-positive granules in the cytoplasm. Dermatoglyphic studies indicated a high total ridge count and a large number of whorls. The feeding difficulties, failure to thrive in childhood, motor and mental retardation, and various other abnormalities cause a high mortality in infancy. Those surviving are PMR and require

custodial care for life. Abnormal chromosomal patterns have not been identified. The syndrome is likely inherited by an autosomal recessive pattern. (10 refs.) -*M. S. Fish.*

Dartmouth Medical School
Hanover, New Hampshire 03755

2471 SYLVESTER, P. E. Pathological findings in Sjogren-Larsson syndrome. *Journal of Mental Deficiency Research,* 13(4):267-275, 1969.

An 18-year-old female with Sjogren-Larsson syndrome, who died accidentally from asphyxia, showed degeneration of the nervous and demyelination of the white matter in the central nervous system. She had dry, scaly skin at birth and exhibited poor locomotor development; at the age of 9, she was diagnosed as MR and spastic. A younger female sib was similarly affected; a younger male sib and the nonconsanguineous parents were normal. Pathological examinations disclosed loss of myelin in the white matter of the cerebral cortex and in the cortico-spinal and vestibulospinal tracts. Cerebellar atrophy, particularly in an area of the superior semilunar lobe, and slight but diffuse loss of Purkinje cells were noted. Neurons had degenerated in the cortex and basal ganglia. Neurochemical analyses disclosed a reduction of phospholipids and of cerebroside in the cortex. The observed increased zinc content of the brain could have been the result of the use by the patient of zinc-containing creams and powders over a long period of time. (9 refs.) -*M. S. Fish.*

St. Lawrence's Hospital
Caterham, Surrey, England

2472 LORBER, J.; KALHAN, S. C.; & MAHGREFTE, B. Treatment of ventriculitis with gentamicin and cloxacillin in infants born with spina bifida. *Archives of Disease in Childhood,* 45(240):178-185, 1970.

Success in the treatment of ventriculitis in infants with spina bifida with gentamicin and cloxacillin appears to depend on adjusting doses to maintain levels of the drug which exceed considerably their minimum inhibitory concentration in the cerebral spinal fluid (CSF). During a 6-year period, 783 newborn infants with spina bifida or cranium bifidium were admitted for treatment. Of these, 11% died of ventriculitis (24% of all deaths). Twenty-one of the patients underwent treatment with gentamicin (14 Ss, mainly for Gram-negative infections) and cloxacillin (7 Ss), the drug of choice for staphylococcal and other Gram-positive infections. Intramuscular and intraventricular doses of gentamicin ranged from 0.5 to 8.0 mg/kg/day. Doses of cloxacillin were 62.5 to 250 mg, 4 times daily, intramuscularly, or 5-20 mg/day, intraventricularly. CSF assays of drug levels during intramuscular administration indicated that drug concentrations were below the minimum inhibitory concentration; consequently, administration was continued by both routes and until negative CSF cultures were obtained. Of the Ss treated with gentamicin, 7 died of ventriculitis, 2 died of other causes, and 1 recovered but was MR. Of the cloxacillin-treated Ss, 1 died of causes other than ventriculitis and 3 of the remaining 6 were MR on recovery. The results of the therapy appear to depend on CSF levels of the drug. (12 refs.) -*M. S. Fish.*

University of Sheffield
Sheffield, England

2473 RAY, C. GEORGE; BECKWITH, J. BRUCE; HEBESTREIT, NANCY M.; & BERGHAM, ABRAHAM B. Studies of the sudden infant death syndrome in King County, Washington: I. The role of viruses. *Journal of the American Medical Association,* 211(4):619-623, 1970.

Viral agents may have a causal relation to the etiology of sudden infant death syndrome (SIDS). All suspected SIDS cases in King County (Washington) and adjacent areas were examined over a 3 1/2-year period. Each was classified as SIDS (cause of death unexplained) or control (cause of death determined), and virus isolation attempts by standard procedures were performed, initially on frozen specimens (usually stools) of both groups. During the first 19-month period, 91 cases were classified as SIDS and the remaining 18 as controls. Viruses were isolated from 15 (16.5%) of the SIDS group and 2 (11.1%) of the control group. Only 4 of the virus isolates from the SIDS group were non-polio. During the second (22-month) phase newer culture techniques and the use of prompt sampling from fresh rather than frozen specimens, principally respiratory samples, afforded significant differences between the SIDS and control groups. Of 80 SIDS cases, virus isolates numbered 43, 30 of which were non-polio. A variety of viral serotypes were identified, and although a number of these appeared to have little relation to SIDS, the data indicate that viral factors may be involved in SIDS and that further study of these agents may provide information on the pathogenesis of the syndrome. (11 refs.) -*M. S. Fish.*

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2474 GRUSOVIN, M. FAUSTA; & DeLELLIS, MANILO. Sindrome di Rubinstein-Taybi (Rubinstein-Taybi syndrome). *Neuropsichiatria Infantile* 105-106 (November-December):973-981, 1969.

A 5-year-old boy exhibited a metabolic disorder (hyperhomocystinuria) and hepatosplenomegaly as well as the somato-clinical traits of the Rubinstein-Taybi syndrome including MR and digital-facial anomalies. The increased level of homocystine may be the clue to the pathogenesis of this disorder. The metabolic disorder is apparently not linked to any of the typical syndrome traits. (16 refs.) *G. van Massenhove.*

University of Rome
Rome, Italy

2475 ALDEGHI, ENRICO. La sindrome di Cornelia de Lange o status degenerativus amstelodamensis: Osservazione longitudinale di un case. (The Cornelia de Lange syndrome also called Degenerativus amstelodamensis: Extended observation of a case). *Neuropsichiatria Infantile*, 99(April):371-383, 1969.

A 4 and a half year study of a case of degeneration syndrome (Cornelia de Lange's syndrome) which was diagnosed when the child was 3 years old confirms and develops the findings of the Dutch pediatrician and points to the "to date," rather mysterious origin of the disease. The child has no speech, retarded skeletal age, and delayed development of the phaso-gnoso-praxis functions; however, the S exhibits reasonable development of elementary motor activity. Extensive details of the case in point are given. Although there are a good number of cases with normal karyotype, chromosomal alterations should be investigated as the most likely cause. (19 refs.) *G. van Massenhove.*

No address

2476 FRASER, F. C. The genetics of cleft lip and cleft palate. *American Journal of Human Genetics*, 22(3):336-352, 1970.

A review of data on congenital cleft lip and cleft palate has raised a number of questions which will require collaborative studies in order to provide answers since each of the 50 recognized syndromes which include cleft lip and/or palate as a feature is rare and adequate clinical material is seldom available to individual investigators. Among areas requiring further study are quantitative embryological investigations to determine why cleft lip and palate occurs more frequently in males and more often on the left side. High-risk families and monozygous co-twins of patients can provide sources for testing of various hypotheses such as the possible correlation of incidence with face shape or body asymmetries. The considerable amount of evidence so far amassed suggests that the majority of cleft lip/palate is a threshold character of multifactorial etiology; however, more evidence is required to test the hypothesis for cleft palate, alone. Collaborative studies and pooling of data may aid in the clarification of a number of these points. (61 refs.) - *M. S. Fish.*

McGill University
Montreal, Canada

2477 PHILLIPS, KENNETH G.; & GRAHAM, JAMES. Incidence of hypoglycemia in the low-birth-weight neonate. *Canadian Medical Association Journal*, 102(4):386-387, 1970.

A study of 179 low-birth-weight neonates with hypoglycemia indicated that such infants exhibited symptoms which were not related directly to the hypoglycemic state. The Ss, admitted to a newborn nursery over a 22-month period, all had birth weights below the twenty-fifth percentile for gestational age. Glucose levels were determined by the Somogyi method at between 2 and 18 hours of age and were repeated on the second or third day if initial levels were above 30 mg/100 ml. When concentrations were below that level, determinations were repeated immediately and therapy was initiated (intravenous injection of 1-2 ml/kg of 50% dextrose followed by continuous infusion of 10 or 15% dextrose until levels remained normal and oral feeding had been established). Cases of persistent hypoglycemia were also treated with 5 mg/day of prednisone. Of the entire group, none had repeat levels between 20 and 30 mg/100 ml; however, 4 had repeat levels between 5 and 17 mg/100 ml. Three of the 4 infants had cyanosis or apneic episodes, and 1 was dyspneic and tachypneic. Mothers of 2 of these 4 infants had toxemia. Two of these 4 infants died of pulmonary disease. The incidence of hypoglycemia in the entire group was lower than that found in other comparable studies. (11 refs.) -*M. S. Fish.*

St. Joseph's Hospital
2917 Bloor Street West
Toronto 590, Ontario, Canada

*Gross brain disease (postnatal)*

2478 GIMENO, A.; LIANO, H.; & KREISLER, M. Ataxia-telangiectasia with absence of IgG. *Journal of the Neurological Sciences*, 8(3):545-554, 1969.

An 8-year-old girl shows the characteristic pattern of ocular telangiectasia, progressive ataxia, and dystonia found in the ataxia-telangiectasia syndrome of Louis-Bar. Abnormalities of γ-globulin fractions are commonly found in the syndrome, but this patient is the first reported case with a total absence of the IgG fraction. Pneumoencephalography demonstrated marked global cerebellar atrophy. (36 refs.) - *E. L. Rowan.*

Centro Nacional de Investigaciones Medico-Quirurgicas de la Seguridad Social
Madrid, Spain

2479 DUNN, HENRY G.; & DOLMAN, CLARISSE L. Necrotizing encephalomyelopathy: Report of a case with relapsing polyneuropathy and hyperalaninemia with manifestations resembling Friedreich's ataxia. *Neurology*, 19(6):536-550, 1969.

A 9 1/2 year-old boy was proved to have necrotizing encephalomyelopathy after a clinical course which suggested a variant of Friedreich's ataxia with superimposed relapsing polyneuropathy and hyperalaninemia. The patient had recurrent attacks of weakness beginning at 8 months of age. Features suggestive of Friedreich's ataxia developed at 2 years, together with loss of tendon reflexes and mild MR. Another relapse occurred at 8 years when increased amounts of alanine were found in the plasma and urine. Alpha-keto acids in the urine were initially high but receded to normal, and the spinal fluid was normal up to 4 months before death. After death excessive amounts of alanine were found in the heart, blood, urine, cerebrospinal fluid, and brain. Post-mortem pathological examination revealed the signs of chronic necrotizing encephalomyelopathy, such as multiple old and new necrotic foci in the brain gray matter, demyelination of the optic and peripheral nerves, and degeneration of the spinal cord. The findings indicate that necrotizing encephalomyelopathy may present much like hereditary ataxias, yet tend to progress in relapses. Particularly noteworthy are the relapsing polyneuropathy and the alanine metabolism disturbance. (64 refs.) - *S. Glinsky.*

University of British Columbia
Vancouver 9, British Columbia, Canada

2480 CHACO, J.; & TAUSTEIN, I. Myotonia dystrophica and Friedreich's ataxia in one patient. *European Neurology*, 2(1):123-126, 1969.

A 33-year-old female patient exhibited both myotonia dystrophica and Friedreich's ataxia -- the first such recorded case. The typical signs of myotonia dystrophica were marked dystrophy of the facial and extremity muscles, myotonia of the finger flexors in both hands, and subcapsular cataracts in both eyes. An additional 8 signs were typical of Friedreich's ataxia. General clinical examination and routine laboratory tests revealed no further abnormalities. The case suggests that there exists a genetic connection between these 2 diseases. (5 refs.) - *S. Glinsky.*

Hadassah University Hospital
Jerusalem, Israel

2481 DAYAN, A. D.; OCKENDEN, B. G.; & CROME, L. Necrotizing encephalomyelopathy of Leigh: Neuropathological findings in 8 cases. *Archives of Disease in Childhood*, 45(239):39-48, 1970.

An analysis of 8 cases of necrotizing encephalomyelopathy (NE) suggested the presence of an autosomal recessive gene and a possible disorder in lipoic acid metabolism. Ss revealed central nervous system lesions in the caudate nuclei, putamina, periaqueductal tissues, tegmentum, fourth ventricle, centrum ovale, cerebellum, and the spinal cord (grey and white matter). The age of onset of NE was variable; the disease progressed rapidly and at some stage induced episodic vomiting, apnea, and varieties of Cheyne-Stokes respiration. Two Ss had a deformed sternum; 3 had

low plasma levels of alkaline phosphatase. Despite a resemblance to thiamine-deficient encephalopathy, there is no direct evidence of thiamine etiology in NE. The widespread brain damage suggests a tortuous link with a deficiency of the vitamin, lipoic acid. (40 refs.) - *B. Berman.*

Hospital for Sick Children
London, England

2482 CULLITY, G. J.; & KAKULAS, B. A. Encephalopathy and fatty degeneration of the viscera: An evaluation. *Brain,* 93(1): 77-88, 1970.

A clinico-neuropathologic study of 9 patients diagnosed with encephalopathy and fatty degeneration of the viscera, a neurologic syndrome of infancy and childhood, confirmed previous reports of the disease's association with "infectious" childhood illness (although arguing against a specific agent) and re-emphasized its fatal consequences in previously healthy subjects. Known also as "white liver disease" because of frequent presence of fatty liver in its pathogenesis, the disease presented other pathogenic factors, septicemia and focal hepatic necrosis, in 3 additional Ss. When first seen, the patients presented various acute illnesses including measles (1S), herpes stomatitis (2Ss), urinary tract infection (1S), and upper respiratory infection (5Ss). Laboratory studies included serum glutamic transaminase, cerebrospinal fluid, serum glucose, and neutrophil estimations. At autopsy, 8 Ss showed hypoxic brain lesions; several revealed viral isolates from other than brain tissues; 10 who died in the acute phase revealed fatty change in every liver cell. Although strongly suggesting pathogenesis, the visceral fatty change may be non-specific and of nutritional, infective, or metabolic origin. (16 refs.) - *B. Berman.*

University of Western Australia
Perth, Western Australia

2483 BIGNAMI, AMICO; & FORNO, LYSIA S. Status spongiosus in Jakob-Creutzfeldt disease: Electron microscopic study of a cortical biopsy. *Brain,* 93(1):89-94, 1970.

Electron-microscopic studies in a 57-year-old patient with Jakob-Creutzfeldt disease confirmed the presence of status spongiosus, and in a cortical biopsy, identified the distended cell processes as preterminal axons and presynaptic nerve endings. The S presented a history of tremor, unsteady gait, and severe memory loss but otherwise had been well except for an influenza-like illness. Biopsy further revealed lipofuscin cells in neuronal and astrocytic perikarya, and in perivascular cells. Ultrastructural analyses showed considerable distention of presynaptic terminals, and stimulated speculation that this may cause the profound EEG disturbances characteristic of the disease. This study indicates that the pathogenic agent (the disease has been transmitted to a chimpanzee) has a similar effect on both axonal terminals and astrocytic cell processes. (13 refs.) - *B. Berman.*

Stanford University School of Medicine
Palo Alto, California 94305

2484 WALLACE, D. C. A new manifestation of Leber's disease and a new explanation for the agency responsible for its unusual pattern of inheritance. *Brain,* 93(1):121-132, 1970.

A family severely affected with Leber's disease, also called Leber's optic atrophy, presents a previously undescribed aspect (severe and sometimes fatal encephalitic illness occurring between 5 and 10 years of age) that permits better understanding of agent transmission. In this family, the disease was more severe than in other cases with all 15 males in the female line showing some visual defect and clinical features (amaurosis, neurologic signs, psychiatric symptoms, and encephalopathy) which conformed to the syndrome pattern. In 2 fatal cases with severe encephalitic manifestations, there was probably hypothalamic involvement with polydipsia and bulimia. There was no evidence of sex-linked inheritance but rather a maternal inheritance pattern without exception. This suggests vertical transmission (mother to children) of an infective agent (probably one of the slow viruses affecting the central nervous system) geared to the child's genetically determined resistance. (13 refs.) - *B. Berman.*

Queensland Institute of Medical Research
Herston, Brisbane, Australia

2485 ROBERTS, A. H. Neurological complications of systemic diseases--II. *British Medical Journal,* 1(5688):95-97, 1970.

A review of neurological morbidity secondary to several groups of systemic diseases (collagen diseases, thyrotoxicosis, and myxedema) revealed that disturbed neural function frequently yields presenting symptoms in various metabolic anomalies and endocrine disorders. The most prevalent of the inflammatory diseases of collagen tissue is rheumatoid arthritis (affecting 3% of the population), but it shows

fewest neural complications; it may be preceded by carpal-tunnel syndrome and complicated by acute necrotising arteritis and atlanto-axial dislocation. Among other collagen pathologies, arteritis, found generally in patients over age 60, appears as the cranial arteritis-polymyalgia rheumatica complex. Polyarteritis nodosa and disseminated lupus erythematosus, relatively rare outside hospital practice, often accompany central nervous system lesions. In polymyositis, multiple inflammatory foci affecting muscle tissue cause primary muscle disease almost as widespread as the muscular dystrophies. Early diagnosis and steroid treatment may prevent irreversible neurologic damage. Disturbance of mood or intellectual function, anxiety, and agitation may herald the hyperthyroidism causing thyrotoxicosis and myxedema. A large proportion of thyrotoxicosis cases show a minor form of proximal myopathy as well as the severe eyelid retraction of progressive exophthalmic ophthalmoplegia. Myxedema may present deafness, carpal-tunnel syndrome, and extremity pains. Replacement therapy relieves systemic manifestations. (8 refs.) - *B. Berman.*

London Hospital
London, England

2486 New light on Creutzfeldt-Jakob disease. *Lancet,* 1(7638):132, 1970. (Editorial)

Demonstration of kuru transmissibility has focused attention on an analogous presenile degenerative malady of civilized communities--Creutzfeldt-Jakob disease--a pathology with a constant degenerative pattern and universal histologic findings of neuronal deterioration, status spongiosus, and astrocyte proliferation. Claims of transmission of this disease from humans to chimpanzees are buttressed by morphologic similarities (in particular, degeneration of the hypothalamoneurohypophyseal system) between the infected human and inoculated animal brains. A further noteworthy aspect is the increase, in both man and animal, of astrocytes in affected areas, a condition found also in scrapie and experimental kuru, both slow-virus diseases. Additional ultrastructural studies are required to determine the nature of the slow infective agents that may underlie Creutzfeldt-Jakob disease. (9 refs.) - *B. Berman.*

2487 GORDON, ROBERT M.; & SILVERSTEIN, ALLEN. Neurologic manifestations in progressive systemic sclerosis. *Archives of Neurology,* 22(2):126-134, 1970.

Of 130 patients diagnosed for progressive systemic sclerosis (PSS), 24 showed a total of 28 neurologic symptoms involving the nervous system; however, the primary pathological process of the disease was not established as the cause of any of the neurological findings. Four patients developed symptoms which were likely iatrogenic manifestations (3 cases of myopathy likely related to corticosteroid treatment and 1 patient who, after parathyroidectomy, developed a seizure disorder); 9 manifestations were likely related to the involvement of other organs; 9 manifestations appeared to be coincidental to the disease; 6 patients not receiving corticosteroid therapy had myopathy. The clinical course of the myopathy of this latter group did not appear to relate to the course or severity of the PSS, and clinical and biopsy observations disclosed no distinction between the myopathy of this group and that of the patients receiving corticosteroids. The lack of central nervous system involvement in this disease may be due to the absence of collagen in the brain; however, involvement of the peripheral nervous system has been well documented for only 1 case of PSS. The disease, therefore, differs in this respect from most other collagen diseases in which neurological symptoms are frequent. (44 refs.) - *M. S. Fish.*

Baylor College of Medicine
Houston, Texas 77002

2488 HABERLAND, CATHERINE; & PEROU, MAURICE. Encephalocraniocutaneous lipomatosis: A new example of ectomesodermal dysgenesis. *Archives of Neurology,* 22(2):144-155, 1970.

A 5 1/2-year-old MR and epileptic boy was found, on autopsy, to have a new form of neurocutaneous lipomatosis--visceral (heart) and cutaneous lipomatosis, lipomatosis and deformity of the skull, lipoma of the eye, and lipomatosis of the central nervous system associated with multiple lipomas, leptomeningeal lipoangiomatosis, cerebral malformations, and cortical calcifications. While the case has features in common with those reported for Sturge-Weber-Dimitri disease (liptomeningeal angiomatosis, cortical calcifications, and extension of lipomatosis to the skull, eye, and viscera), the presence of cutaneous and leptomeningeal lipomatosis in conjunction with multiple lipomas of the nervous system and of malformations of other mesodermal derivatives make the present case an entirely unique one. The pathogenic mechanism of the disease may be related to a metabolic or enzymatic defect in the mesenchyma causing abnormal differentiation and development. (30 refs.) - *M. S. Fish.*

Illinois State Psychiatric Institute
Chicago, Illinois 60612

*Psycho-environmental*

2489 BALL, J. R. B. Organo-dynamic relationships in the field of psychiatry, or Hughlings Jackson today. *Australian Journal of Mental Retardation*, 1(4):127-132, 1970.

Concepts of mental illness originally formulated by Hughlings Jackson are today illustrated in the work of Henry Ey, who integrates data from neurophysiology, clinical phenomenological psychiatry, psychoanalysis, and related schools. Ey asserts that mental disease is a function of psychic organization, psychiatric illness is fundamentally negative or regressive (always conditioned by some deficit or disturbance), the dynamic structure and evolution of mental illness reflect dissolution of psychic organization, and organic processes ultimately determine mental illness. Mental disorders are multifactorially determined; even in schizophrenia, where a genetic predisposition is involved, there are environmental causations. Much mental illness reveals abnormal perceptions of the environment by the patient, although he considers his perceptions normal. Diagnosis and treatment of psychiatric disorders must consider the total structure of the human being. (43 refs.) *B. Berman.*

University of Melbourne
Parkville, Victoria, Australia

2490 SIM, MYRE. Childhood autism. *British Medical Journal*, 1(5691):300, 1970.

A disproportionate amount of attention and treatment has been given to autistic children at the expense of children with other forms of subnormality. The autistic child does not look subnormal and is usually from the higher socioeconomic classes and, therefore, has a more intelligent and articulate lobby on his behalf. However, treatment results have been disappointing and the allocation of additional resources to this problem at the expense of others is not justified. (2 refs.) - *E. L. Rowan.*

Queen Elizabeth Hospital
Birmingham 15, England

2491 DAVIS, JOHN. The effects of early environment on later development. *Developmental Medicine and Child Neurology*, 12(1):98-99, 1970. (Annotation)

Evidence from animal and clinical studies indicates that early environmental factors, particularly those relating to nutrition, may have an important effect on physical and mental development. In a recent investigation, 2 groups of adolescents who had comparable low birth-weights but differed in gestational period by a month were compared with a control group of normal birth-weight Ss. All were matched for age, sex, and social class. At all ages, the Ss of the low birth-weight group were smaller and less intelligent than the control group, but the 2 low birth-weight groups were comparable to each other in height and intelligence. Parents of the low birth-weight group were also shorter than parents of the control group. The data also showed that younger children in large families of lower socioeconomic class tend to be shorter and less intelligent than their older sibs. This relation did not hold for upper middle-class families, thus indicating that an environmental factor, probably nutritional, was involved in early life. Emotional deprivation, also known to affect height and motor development, may have been greater for the younger children in the large families of lower class than for their older sibs or for comparable children of families in more optimal economic conditions. (7 refs.) - *M. S. Fish.*

St. Mary's Hospital
Manchester, 13, England

## MEDICAL ASPECTS--CONVULSIVE DISORDERS

2492 CARTER, SIDNEY; & GOLD, ARNOLD P. The critically ill child: Management of status epilepticus. *Pediatrics,* 44(5, Part 1):732-733, 1969.

Status epilepticus--an epileptic condition manifested by recurrent convulsions without recovery of consciousness between episodes--can occur with any seizure type, must be considered life-threatening, and demands immediate application of 4 treatment steps. The condition occurs in 5 to 10% of epileptic children and is more common in symptomatic cases of infectious, metabolic, vascular, or structural etiology. Therapeutic actions are immediately mandatory because neurologic residua from irreversible cerebral damage and mortality are higher in the young age group. Therapy may include: suppression of convulsions (intravenous anticoagulants such as 0.3 mg/kg of diazepam over a 1-to-2-minute period); supportive measures such as adequate airway, oxygen, and hydration; daily maintenance including long-acting drugs (preferably diphenylhydantoin sodium, 5 mg/kg) administered first intramuscularly, then orally; and investigation of etiology through EEGs, skull X-rays, echoencephalograms, brain scans, and on rare occasions, contrast studies. (8 refs.) - *B. Berman.*

Columbia University College of Physicians & Surgeons
New York, New York 10032

2493 NEUBAUER, C. Mental deterioration in epilepsy due to folate deficiency. *British Medical Journal,* 2:759-761, 1970.

In 50 epileptic children (CA 5 to 18 yrs) treated for folate deficiency with a combination of folic acid and vitamin $B_{12}$, some improvement occurred in 22, none in the other 28; 3 patients relapsed after initial improvement. Duration of treatment varied from 5 to 26 weeks before improvement was noted, with the shortest interval (5 to 8 wks) in younger children. Improvements included greater alertness (9 cases), increased energy (5 cases), attempts to talk again (4 cases), and greater relaxation (3 cases). Since prevention of MR is better than treatment, a small amount of folic acid (5 mg/week) and vitamin $B_{12}$ (250 mg once a month) should be initiated as soon as anticonvulsant-drug treatment begins. (12 refs.) - *B. Berman.*

Prudhoe and Monkton Hospital
Northumberland, England

2494 BIRD, A. V. Anticonvulsant drugs and congenital abnormalities. *Lancet,* 1(7589):311, 1969. (Letter)

In contrast to a recent warning that anticonvulsant therapy during pregnancy bears a causal relation to the occurrence of deformities such as cleft palate and hare-lip in the offspring, no single instance of malformation in a baby born of a mother under anticonvulsant treatment has been observed in the small percentage of pregnant mothers in approximately 3,200 patients. (1 ref.) - *M. S. Fish.*

Johannesburg General Hospital
Johannesburg, Transvaal, South Africa

2495 TAYLOR, DAVID C.; & OUNSTED, CHRISTOPHER. Status epilepticus and diazepam. *British Medical Journal,* 1(5641):440, 1969. (Letter)

Reported dangers associated with the use of diazepam in status epilepticus should not unduly alarm practitioners and cause them to avoid the use of diazepam as the first drug of choice in the management of this potentially lethal disease. (1 ref.) - *M. S. Fish.*

Human Development Research Unit
University of Oxford
Oxford, England

2496 BOWE, JAMES. Status epilepticus and diazepam. *British Medical Journal*, 1(5641):439-440, 1969. (Letter)

Diazepam (5-10 mg administered intramuscularly) is the drug of choice for the management of severe cases of epilepsy in children and has been successfully employed in 125 such cases since 1965. Early administration is essential to control severe convulsions recurring in rapid succession. The reported occurrence of hypotension associated with the use of the drug for status epilepticus is claimed to be due mainly to the severity of the illness and not to the use of the drug. Occasional hypotensive reactions should not deter use of the drug in severe cases. (1 ref.) - *M. S. Fish.*

Lingfield Hospital School
Lingfield, Surrey, England

2497 ROBB, PRESTON. Epilepsy: A challenge today. *Developmental Medicine and Child Neurology*, 11(2):135-136, 1969. (Editorial)

Nationwide epilepsy centers are needed to render evaluation, treatment, consultation, and follow-up of patients and to provide a research population for the study of all facets of the disease. Epilepsy is successfully treatable in the majority of cases. The difficulties of diagnosis and the stigma which frequently accompanies the disease make an accurate estimate of the prevalence difficult; however, one approximation of the rate is 3.7/1000 population. This major unsolved medical problem requires not only the facilities which these proposed centers could provide but a careful study of areas which merit further research and renewed efforts to find additional ways to meet the medical, social, legal, custodial, occupational, and educational needs of the patient. (No ref.) - *M. S. Fish.*

1610 Pine Avenue West
Montreal 25, Canada

2498 SINHA, S. N. Status epilepticus and diazepam. *British Medical Journal*, 1(5641):440, 1969. (Letter)

Treatment with diazepam (10 mg intravenously) promptly arrested seizures in 4 of 5 adult status epilepticus patients; the fifth responded to 40 mg of the drug administered intravenously over a 1/2-hour period. Mild, transient hypotension which was observed in the fifth patient was easily arrested. Diazepam, at doses not exceeding 40 mg/hour, is the first drug of choice in the treatment of this disease provided the patient has received no parenteral anticonvulsant therapy during the previous 6 hours. (No ref.) - *M. S. Fish.*

Royal Infirmary
Sunderland, Co Durham, England

2499 LIVINGSTONE, SAMUEL. The physician's role in guiding the epileptic child and his parents. *American Journal of Diseases of Children*, 119(2):99-102, 1970.

Adequate overall therapy can rehabilitate most patients with epilepsy to the extent that they can live essentially normal lives. The primary need is for their realistic acceptance of the disorder and their disregard for the layman's adverse attitude, which, if accepted, could lead to pathological restlessness, belligerence, and antagonism. The patient must accept some restrictions, particularly on driving and certain types of employment, but he should be encouraged to carry on as much normal activity as possible. His attention should be directed to the gradual acceptance of the individual with epilepsy by society and the examples of famous men leading successful careers in spite of epilepsy. The physician must treat each patient as an individual with a specific handicap potential and foster an attitude of acceptance among the patient's family and friends. (1 ref.) - *S. Glinsky.*

Johns Hopkins Hospital,
Baltimore, Maryland 21205

2500 Surgery in epilepsy. *British Medical Journal*, 2(5650):133, 1969. (Editorial)

Surgery in the treatment of epilepsy arising in the temporal lobes of the brain, especially where there is a clear pathological lesion, has been shown to be of considerable value. However, the process of selecting patients for surgery is often complex and is a subject of ongoing study. Aside from a clinical history, which ascertained a temporal location for the neuropsychological pattern, the most useful aid in selecting patients was the EEG. At the present time, workers are developing a system of multivariate analysis of predictive factors in order to best select patients for operation. The more variables which can be used in the analysis, the more the prediction is likely to be of value. (7 refs.) - *B. J. Grylack.*

2501 BALLA, JOHN I. The rehabilitation of epileptics. *Rehabilitation in Australia*, 6(3):15-22, 1969.

Most epileptics who have experienced only one convulsive seizure are well-adjusted members of the community, while hard core epileptics are frequently too disturbed to receive general rehabilitation counseling and require psychiatric care. In a 3-year study carried out at the Royal Talbot Rehabilitation Centre in Kew (Australia), 82 severely disabled patients with a primary diagnosis of epilepsy related to idiopathic or familial causes or to birth injuries were evaluated for job ability and tolerance. Duration of the stay at the Centre was less than 6 months for 55 patients, and ranged from 6 months to 1 year for 21 patients and from 12 to 24 months for 1 patient; 5 patients are still in the Centre. At the time of follow-up, 17 of the 20 patients discharged to sheltered workshops were still there, and 18 of the 30 patients employed in outside jobs were still working. Sheltered workshops usually offer the best hope to discharged patients and often lead to marked improvement in social adjustment and personality disorders. It is anticipated that many of the patients in outside jobs will experience breakdown and will require psychiatric care in the future. Of those patients who were discharged home originally or who failed in attempts at employment, the majority had low intelligence or psychiatric disabilities, and some could not obtain adequate accommodations. With the increasing awareness of the problems of epilepsy, it is hoped that there will be an increase in rehabilitation services and a more exhaustive elucidation of causes. (9 refs.) - *B. J. Grylack.*

Royal Talbot Centre
Melbourne, Victoria, Australia

2502 FLOR-HENRY, P. Schizophrenic-like reactions and affective psychoses associated with temporal lobe epilepsy: Etiological factors. *American Journal of Psychiatry*, 126(3): 400-404, 1969.

To elucidate correlates of psychosis in temporal lobe epilepsy, 50 temporal lobe epileptics with documented histories of psychotic disturbances were studied on more than 70 psychosocial, genetic, and biological parameters. These patients were compared to a randomly selected control group of 50 temporal lobe epileptics who had never exhibited psychotic symptoms. Chi-square analyses of the data show that: temporal lobe epilepsy of the dominant hemisphere predisposes to psychotic manifestations; epilepsy of the nondominant temporal lobe is associated with manic-depressive psychotic reactions while epilepsy of the dominant temporal lobe is associated with schizophrenic-like psychotic reactions; the presence of psychomotor seizures and frequent temporal convulsions is inversely correlated with psychosis, suggesting that convulsive seizures and psychosis are antithetical manifestations of the same underlying disturbance of cerebral function; and in epileptic psychoses, periodicity is correlated with minimal brain damage and chronicity with maximal brain damage. (10 refs.) - *J. C. Moody.*

Simon Fraser Mental Health Centre
New Westminster, British Columbia, Canada

2503 WILSON, P. J. E. Cerebral hemispherectomy for infantile hemiplegia. *Brain*, 93(1):147-180, 1970.

Of 50 cases of cerebral hemispherectomies performed to alleviate intractable epilepsy and spastic infantile hemiplegia associated with unmanageable behavioral disturbance, 82% have complete or substantial relief of epilepsy, 93% show elimination or considerable amelioration of behavior disorder, and 20% have advanced in socioeconomic status. The outcome was best for patients with higher preoperative IQs and already favorable social-domestic environments. The Ss (30 males, 19 females), selected by a panel of clinicians from 280 infantile hemiplegics, ranged in age from 1 1/2 to 31 years at time of surgery. Pathological findings included arterial lesions with or without cystic porencephaly. Thirty-eight percent showed prolonged morbidity, most commonly subdural hemorrhage resulting in obstructive hydrocephalus, and at times, central nervous system hemosiderosis. Since the complications resulting from surgery are remediable, the procedure deserves consideration. (141 refs.) - *B. Berman.*

Morriston Hospital
Swansea, England

2504 VIUKARI, N. M. A. Ammonium chloride as an adjuvant to diphenylhydantoin therapy, and pH, base bicarbonate and sodium in the serum of forty mentally subnormal epileptics. *Journal of Mental Deficiency Research*, 14(1): 85-94, 1970.

Forty epileptic, MR adults under treatment with diphenylhydantoin were administered sodium bicarbonate and ammonium chloride in order to assess the effects of acid-base shifts. Eleven patients initially had an elevated serum bicarbonate. At the end of ammonium chloride intake (clinically associated with anticonvulsant effect), 23 patients

had hyperchloremia. Ten patients who had seizures on ammonium chloride withdrawal had low bicarbonate levels. It thus appears that a lowered bicarbonate:chloride ratio is accompanied by anticonvulsant effect. (22 refs.) - *E. L. Rowan.*

Rinnekoti Institute for the Mentally Retarded
Majalampi, Finland

2505 VIUKARI, N. M. A.; & TAMMISTO, P. Effects of diphenylhydantoin, pH and total carbon dioxide in the cerebrospinal fluid during sodium bicarbonate and ammonium chloride intake in forty mentally subnormal epileptics. *Journal of Mental Deficiency Research,* 14(1): 77-84, 1970.

Forty epileptic, MR adults under treatment with diphenylhydantoin (DPH) were administered sodium bicarbonate (alkalinizing agent) and ammonium chloride (acidifying agent) in order to assess the effects of acid-base shifts on treatment. There was no influence on the DPH level in either serum or cerebrospinal fluid (CSF) under either regimen; the CSF pH also remained stable. Six patients did show DPH toxicity during ammonium chloride treatment, and 10 had seizures on ammonium chloride withdrawal. The former had had high initial levels of DPH, and the latter had had low levels. (18 refs.) - *E. L. Rowan.*

Rinnekoti Institute for the Mentally Retarded
Majalampi, Finland

2506 WILKINS, ROBERT H.; & BRODY, IRWIN A. Jacksonian epilepsy. *Archives of Neurology,* 22(2):183-188, 1970. (Commentary)

Studies of focal epilepsy by John Hughlings Jackson initiated a series of interpretations which led him to the formulation of fundamental theories on the organization and function of the entire central nervous system. Clinical observations and reasoning, with no experimental testing, formed the main basis of these theories. The experimental proof, however, has come from others in later years, and the interpretations which Jackson made have provided a basis from which many of the present advances in the knowledge and treatment of epilepsy are derived. (39 refs.) *M. S. Fish.*

Duke University Medical Center
Durham, North Carolina 27706

2507 MARTIN, F.; BEAUMANOIR, A.; & MUNDLER, F. Eine epileptische Enzephalopathie--das Lennoxsche Syndrom (An epileptic encephalopathy--the Lennox syndrome). *Munchener Medizinische Wochenschrift,* 111(36):1810-1815, 1969.

The Lennox syndrome, one of many children's epilepsies, is described in terms of its characteristics, form of attack, and course based upon experience with 30 institutionalized children and youths, observed from their sixth month to twelfth year. The syndrome's course exhibits a constant, diminished intelligence level, a multitude of generalized, non-convulsive attacks, disease appearance between the third and fourth year, an extrapyramidal hyperkinesis, and a varied, polymorphous EEG curve with generalized slow peaks and peak wave complexes. The etiological explanation involves both hereditary factors and birth traumas and damage in the first trimester. Fetal pathology also plays a role, as 11 of the 30 patients exhibited malformations. The course of the disease involves initial classical manifestations of the petit-mal and grand-mal attacks, which become gradually atypical. The disease is highly resistant to drugs, with the most favorable effects being exerted by a "Le Mally" type of group activity therapy. (3 refs.) - *S. Glinsky.*

Medizinisch-Padagogisches Institut fur
Epileptische Kinder "Le Mally,"
CH-1242 Saligny bei Genf, Switzerland

2508 Elusive epileptic pattern traced. *Medical World News,* 11(1):30E, 1970.

Absence status, a form of generalized epilepsy, is often confused with other conditions, such as epilepsy prodomes, postictal confusion, post-traumatic or global amnesia, hysterical behavior, and schizophrenic reaction. Absence status pattern is characterized by a range of symptoms from monosyllabic verbal responses and rhythmic blinking, to a mild state of confusion, or possible deep sleep. The patient usually realizes that he is not up to par and that his initiative and ability to plan simple tasks or carry out simple commands are diminished. The onset may be sudden or gradual with the duration ranging from one-half hour to 2 days. Attacks may be spontaneous or precipitated by hyperventilation, activation, tension, grief, fatigue, minor trauma, or menstruation. Diagnosis of absence status is more of a problem than is its treatment. Intravenous diazepam or barbiturates are most effective in terminating attacks. (No refs.) - *C. L. Pranitch.*

2509 MARQUES-ASSIS, LUIS; GUENNI-BEJAR, DANIEL; & FARIA LINS, EVALDO J. A epilepsia nos tumores cerebrais (Epilepsy in cerebral tumors). *Arquivos de Neuro-Psiquiatria*, 27(1):31-40, 1969.

Of 411 cases with cerebral tumors diagnosed through biopsy or necropsy, 86 (19.4%) showed epileptic manifestations. Age range was 3 to 63 years for the 55 males and 31 females. Oligodendroglioma, metastatic carcinomas and glioblastoma multiforme were, in this order, the most epileptogenic tumors. The frontal, parietal and temporal areas were, in this order, the most epileptogenic regions. The metastatic carcinomas and astrocytoma were most frequent in cases with epilepsy less than one year and more than 3 years, respectively, with the frontal area most frequent in the first group and the temporal area in the second. Oligodendroglioma and meningoma, and the frontotemporal and falx cerebri locations predominated in the most severe cases. Cranio-pharyngiomas and meduloblastomas induced most seizures without aura, and in these cases, the pituitary region and posterior fossa were the most frequent locations. Metastatic carcinomas and meningomas as well as frontoparietal and parietal areas were most frequently found in the cases with seizures of the Jacksonian type. (9 refs.) *G. Van Massenhove*.

Universidade de Sao Paulo
Caixa Postal 3461
Sao Paulo, SP, Brazil

2510 WIECHERT, P.; & GOLLNITZ, G. Stoffwechseluntersuchungen des Cerebralen Anfallsgeschehens: Die Aktivitat der Glutaminase, der Glutaminsynthetase und der Ammoniakstoffwechsel vor und wahrend Cerebraler Anfalle (Metabolic investigations of epileptic seizures: The activity of glutaminase, glutamine synthetase and ammonia metabolism before and during cerebral seizures). *Journal of Neurochemistry*, 16(5): 317-322, 1969.

The activity of glutaminase and glutamine synthetase and the concentration of free ammonia in the brain of rats before and during cerebral seizures were investigated for their possible influence upon seizures. Glutaminase activity increased during the stage of sham rage or commencement of paroxysm after intracisternal injection of pyridoxal-5-phosphate. The substrate conversion was enhanced and caused the accumulation of free glutamic acid and ammonia in the cerebral tissue. This metabolic disturbance was probably a further cause of the occurrence of cerebral convulsions. The glutamine synthetase was not heavily involved in the experimental seizures analyzed. The ammonia concentration increased both in the pre-convulsive and tonic phases of the convulsions. The changes observed were interpreted as the result of metabolic changes in the irritated nervous tissue, and not as a specific or causative agent of cerebral seizures. (25 refs.) - *S. Glinsky*.

Universitats-Nervenklinik Rostock
Rostock, DDR (German Democratic Republic)

2511 WIECHERT, P.; & GOLLNITZ, G. Stoffwechseluntersuchungen des Cerebralen Anfallsgeschehens: Die Konzentration der freien Aminosauren im Hirngewebe vor und wahrend experimentell ausgeloster cerebraler Anfalle (Metabolic investigations of epileptic seizures: The concentration of free amino acids in cerebral tissue prior to and during experimentally initiated cerebral seizures). *Journal of Neurochemistry*, 16 (5):1007-1016, 1969.

The concentration of free amino acids in the brain of rats prior to and during experimentally initiated cerebral seizures was compared with that of controls to determine possible causal relationships. The concentration of glutamic acid and metabolically connected alanine, γ-aminobutyric acid, aspartic acid, and glutamine increased during all preconvulsive and tonic phases of the cerebral seizures. The glutamic acid increase is taken to be a result of the altered activities of enzymes involved in glutamate metabolism. The concentration of γ-aminobutyric acid did not increase in the same proportion, and the normal ratio of these 2 amino acids was shifted in abnormal stores in favor of glutamic acid. The results suggest that a disturbance of the physiological balance between glutamic acid and γ-aminobutyric acid leads to seizures. (28 refs.) - *S. Glinsky*.

Universitats-Nervenklinik Rostock
Rostock, DDR (German Democratic Republic)

2512 WIECHERT, P.; & GOLLNITZ, G. Stoffwechseluntersuchungen des Cerebralen Anfallsgeschehens: Die Aktivitat der Glutamat-Decarboxylase vor und wahrend experimentell ausgeloster Krampfanfalle (Metabolic investigations of epileptic seizures: The activity of the glutamate decarboxylase prior to and during experimentally initiated convulsions). *Journal of Neurochemistry*, 15:1265-1270, 1968.

Glutamate decarboxylase activity in the brain of rats before and during experimentally induced cerebral seizures was compared with

that of control rats to determine a possible causal relationship. Inhibition of enzyme activity occurred during the tonic convulsions after intracisternal injection of L-glutamate or pyridoxal-5-phosphate, after audiogenic stimulation, after intraperitoneal injection of pentamethylenetetrazole and during electroshock. In the pre-convulsive stage, the enzyme was markedly inhibited after an intracisternal injection of L-glutamate and L-aspartate and after audiogenic stimulation. The enzyme activity as compared with that of control rats remained unchanged only after the intracisternal injection of pyridoxal-5-phosphate. L-glutamate and pyridoxal-5-phosphate *in vivo* and *in vitro* had different effects upon the glutamate decarboxylase. A possible cause of cerebral seizures may be the inhibition of glutamate decarboxylase activity. (37 refs.) - *S. Glinsky.*

Universitats-Nervenklinik Rostock
Rostock, DDR (German Democratic Republic)

2513 ROSE, ARTHUR L.; & *LOMBROSO, CESARE T. Neonatal seizure states: A study of clinical, pathological, and electroencephalographic features in 137 full-term babies with a long-term follow-up. *Pediatrics,* 45 (3):404-425, 1970.

Diagnostic intravenous infusions with simultaneous EEG monitoring are useful procedures for determining the etiology of neonatal seizures and the prognosis for their outcome. A total of 144 full-term neonates (birth weights of 2,500 g or more) who developed seizures during the first 3 weeks of life was studied prospectively over a mean period of 3.8 years. Of this group, 7 were lost during the follow-up period, and of the remaining 137, 27 (19.7%) died, 39 (28.4%) had neurological disorders associated with MR, and 7 were normal. A comparison of neonatal EEG studies with clinical studies on follow-up revealed that of the 49 patients with normal EEG, 42 (86%) were normal clinically on follow-up. Unifocal and multifocal tracings were associated with 36 (26.3%) and 34 (24.8%), respectively. Of these 2 groups, 69% and 11.8%, respectively, were normal on followup. None of the group with periodic or flat recordings were normal on followup. Clinical work-up included determination of blood sugar, serum, calcium, protein, phosphorus for each neonate and serum magnesium and urinary paper chromatography for selected cases. The clinical findings on the etiology of the seizures were: metabolic disturbances, 27%; intracerebral birth injuries, 14.6%; perinatal infections, 9.5%; perinatal anoxia, 7.3%; congenital cerebral malformation, 8.0%; unknown, 27.7%. More than one of these symptoms appeared in 12 Ss. Autopsy findings on 23 patients included: cerebral malformations, 6; diffuse perinatal encephalopathy, 4; anoxic encephalopathy, 3; bacterial meningitis, 3; intraventricular hemorrhage, 2. Recommended management for infants with seizures of unknown origin includes immediate EEG monitoring and blood, urine, and cerebrospinal fluid examination. Diagnostic intravenous infusions of possible deficient metabolites (pyridoxine, magnesium, calcium, glucose) are begun in that order, and if seizure is related to a deficiency of one of these, rapid response of the S not only improves the prognosis but confirms the diagnosis; otherwise, symptomatic treatment by administration of diazepam (Valium) may be indicated. (44 refs.) -*M. S. Fish.*

*Children's Hospital Medical Center
Boston, Massachusetts 02115

2514 VIUKARI, N. M. A.; & TAMMISTO, P. Diphenylhydantoin as an anticonvulsant: Protein binding and fluctuation of the serum and cerebrospinal fluid levels in forty mentally subnormal epileptics. *Journal of Mental Deficiency Research,* 13(4):235-244, 1969.

When 40 MRs with epilepsy were treated with daily doses (6.1 ± 1.6 mg/kg) of diphenylhydantoin (DPH) for 2 weeks, a statistically significant correlation ($p<.01$) was found to exist between levels of the drug in serum and in cerebrospinal fluid (CSF), and both levels significantly correlated ($p<.01$) with the appearance of toxicity. Drug levels were determined from 3 serial samples of serum and CSF taken at the same time in each S on 3 succeeding weeks. Average levels for each serial determination in the serum were 22.0 ± 7.1, 22.7 ± 7.2, and 22.7 ± 7.5 µg/ml, and in the CSF, 10.1 ± 2.0, 10.2 ± 1.8, and 9.5 ± 1.6 µg/ml. Protein binding accounts for the differences in levels which also had considerable individual variation. DPH levels fluctuated over 20% in 24 (60%) of the patients. The daily oral dose of DPH has no significant correlation with serum and CSF levels. The effective anticonvulsant concentrations of the drug in serum and CSF appear to be 22.5 ± 7.3 and 10.0 ± 1.8 µg/ml, respectively. (20 refs.) -*M. S. Fish.*

University of Helsinki
Helsinki, Finland

2515 RODIN, ERNST A.; & WHITTEN, CHARLES F. Differences between epileptic and non-epileptic children with special reference to

the tryptophan tolerance test. *Developmental Medicine and Child Neurology*, 12(1):36-41, 1970.

Abnormal urinary excretion rates of xanthurenic acid have been observed in epileptics, healthy siblings of epileptics, and children with other central nervous system disorders. Ss were 90 children (48 males and 42 females) between the ages of 1 and 16 years. The group included 43 epileptics, 18 healthy siblings of epileptic patients, 13 Ss suspected of epilepsy, 9 Ss with behavior problems, and 7 Ss with MR. Of this group, xanthurenic acid excretion rates after tryptophan loading were obtained for 80 and found to be abnormal for 22 (27.5%). When abnormal excretion rates were compared with other variables (history, examination, psychological and laboratory tests), children with abnormal excretion tended to be older with a later onset of illness and with a hereditary background of epilepsy. The test may aid in detecting metabolic disorders, but it has not been sufficiently correlated with clinical symptoms to be a determining diagnostic tool for epilepsy. (6 refs.) -*M. S. Fish.*

Wayne State University
Detroit, Michigan 48207

2516 HOPKINS, I. J.; & LYNCH, BETTY C. Use of ketogenic diet in epilepsy in childhood. *Australian Paediatric Journal*, 6(1): 25-29, 1970.

A ketogenic diet administered to 34 children who had intractable epilepsy and did not respond to a variety of anticonvulsant drugs (with the exception of nitrozepam which was unavailable at the time) was effective in 10 Ss and moderately effective in 4. Criteria for selection were: the S had a good tolerance to fats; the mother was able to maintain rigid control of the diet; the family could afford the cost of the diet; and the home environment permitted dietary control. The design of the main diet provided for a high (3:1) ratio of fatty acids to glucose with 90% of the calories (estimated according to age) derived from fat, and a protein content of 1g/kg ideal body weight. The Ss were introduced to the diet gradually and, if possible, remained on it for a 2-year period at which time a gradual return to normal diet ensued. Parents learned to test the urine daily for ketones and to prepare and control the diet. Results were: successful treatment in 10 Ss (29%), with fits eliminated for 3 and reduced considerably for 7; moderate improvement in 4 (13%); unsuccessful with adequate trial in 11 (32%); unsuccessful with inadequate trial in 9 (26%). The clinical types of epilepsy were similar for the successfully and unsuccessfully treated groups; however, lack of response to the diet seemed to correlate with the onset of symptoms at an early age (first 2 years of life), and 6 of the 11 unsuccessfully treated Ss appeared to have some degree of MR compared with 3 of the successfully treated group. Although the mechanism by which a ketogenic diet can reduce or abolish seizures is unknown, the effect on some of the successfully treated Ss was dramatic. (9 refs.) -*M. S. Fish.*

Royal Children's Hospital
Flemington Road
Melbourne, 3052, Australia

2517 DE BARSY, TH.; MYLE, G.; TROCH, C.; MATTHYS, R.; & MARTIN, J. J. La dyssynergie cerebelleuse myoclonique (R. Hunt): Affection autonome ou variante du type degeneratif de l'epilepsie - myoclonie progressive (Unverricht - Lundborg). Approche anatomoclinique [Dyssynergia cerebellaris myoclonica (R. Hunt): autonomous or variant affects of the degenerate type of progressive myoclonic epilepsy (Unverricht - Lundborg). Anatoclinical approach.] *Journal of the Neurological Sciences*, 8(1):111-127, 1969.

The clinical history of four patients is reported (3 post-mortem examinations) who showed cerebellar signs, action myoclonus, and epilepsy. There was no dementia and the course of the disease was progressive. Anatoclinical correlations recognized two different groups among these four cases. The first two observations represented fairly typical examples of dyssynergia cerebellaris myoclonica (DCM) according to Hunt (1921) and as further described by Louis-Bar and van Bogaert (1947), Christophe and Gruener (1956), and characterized by combined systematized atrophies, the main one being the dentato-rubral atrophy. The last two cases represented familial observations of progressive myoclonic epilepsy (without dementia and without Lafora bodies), clinically resembling DCM, but quite different neuropathologically. The results of this comparison support the concept that dyssynergia cerebellaris myoclonica should be regarded as a disorder distinct from progressive myoclonic epilepsy. (30 refs.) -*B. A. Pastine*

Department de Neuropathologie de la
Fondation Born-Bunge
Berchem-Anvers, Belgium

## MEDICAL ASPECTS--CHROMOSOMAL

2518 DAVISON, B. C. CLARE; BEDFORD, JEAN; & DUNN, W. t(2q-;Dq+) in a mentally retarded female child. *Journal of Medical Genetics*, 7(1):81-82, 1970.

Structural rearrangement of the chromosomes and consequent loss of genetic material undetectable by present techniques is a postulated cause of MR in a 3-year-old female child. The S's family had no history of MR or epilepsy, and the parents had normal karyotypes. Physical examination disclosed no evidence of congenital abnormalities. Mental age was 23 months (Merrill Palmer scale) and the social age was 28 months (Vineland Social Maturity Scale). Clinical laboratory tests of the blood and urine gave values within normal limits. Cytogenetic examination disclosed the presence of 1 abnormal long acrocentric chromosome, 1 normal number 2 chromosome and an extra chromosome similar to a number 3. The interpretation of the karyotype is a balanced translocation t(2q-;Dq+); however, brain damage at 8 months is a remote possibility as to the cause of MR. (2 refs.) - *M. S. Fish.*

Population Genetics United
Headington, Oxford, England

2519 Chromosomes and crime. *Canadian Medical Association Journal*, 100(3):135, 1969. (Letter)

The possible relationship between the XYY chromosome pattern in males and a tendency toward criminal behavior is the subject of considerable controversy in the courts and among geneticists and psychiatrists. The use of evidence of chromosome abnormalities in criminal cases may never become widespread since the defense counsel will soon realize that such evidence may result in life-long institutionalization in a mental hospital rather than in a more limited prison sentence. (No ref.) - *M. S. Fish.*

2520 WALKER, FRANK A. Trisomy after colchicine therapy. *Lancet*, 1(7588):257-258, 1969. (Letter)

Observations of over 200 patients with Down's syndrome do not confirm the thesis that an association of colchicine therapy with trisomy 21 exists. All of the patients were karyotyped, and none had a family history of gout and/or colchicine therapy in either parent. Confirmation of this association, if it occurs, should not be made from observations of mitotic cells from bone marrow or peripheral blood but by an examination of miotic chromosomes obtained from testicular biopsies and superovulated ova, respectively, of males and females on colchicine therapy. This study should accompany a comparison of male and female gout patients on colchicine therapy during their reproductive years with age- and sex-matched controls who neither have gout nor have been treated with colchicine. (1 ref.) - *M. S. Fish.*

Milwaukee Children's Hospital
Milwaukee, Wisconsin 53233

2521 KABARITY, A.; & SCHADE, H. Inheritance of a chromosome with lateral translocation ($A_2$): Studied by anoptral-contrast method. *German Medical Monthly*, 14(3):120, 1969.

A heritable chromosomal anomaly, characterized by lateral translocation ($A_2$), is reported in man for the first time. Chromosomal analysis of the Ss, a child with multiple malformations and the mother who was similarly affected, revealed that both Ss had 46 chromosomes (including 2 X's) and on the $A_2$ chromosome there was an extra segment which was inserted laterally into each short arm where the chromatids diverged. Three-dimensional visualization, which utilized the anoptral-contrast method, ruled out overlapping, a possibility which was eliminated also by the fact that the translocation appeared in all metaphases of

both Ss. A translocation of this type has been observed in Drosophila. (2 refs.) - *M. S. Fish.*

Dusseldorf University
Dusseldorf, Germany

2522 BEASLEY, DONALD. Chromosomal abnormalities in mongolism. *Intellectually Handicapped Child*, 9(1):25, 1969.

General information is disseminated regarding chromosomal abnormalities in Down's syndrome and the need for testing parents and sibs of children with the syndrome. The underlying defect in 95% of all cases of Down's syndrome is the non-inherited and sporadic type, Trisomy 21. Its risk figure varies between 1 in 3000 to 1 in 40 with advancing age of the mother. The remaining 5% is due generally to types of translocation or, in rare cases, mosaicism. The translocation risk figure is 1 in 3. All three types dictate chromosomal studies of parents and, if necessary, of sibs to determine the type of abnormality. (No refs.) - *S. Glinsky.*

No address

2523 BOCZKOWSKI, K.: HERMAN, E.; JEDRZEJEWSKI, M. The presence of Turner's syndrome with 45,X karyotype in two generations. *American Journal of Obstetrics and Gynecology*, 103(4):597-599, 1969.

Two Ss within 2 generations of each other exhibited Turner's syndrome. The first S, a 14-year-old girl, showed the typical features of relative shortness, barrel-shaped chest with widely-separated nipples, short and webbed neck, infantile external genitalia, and lack of menstruation. Intelligence was above average. The second S, the girl's paternal aunt (CA 26 yrs), exhibited the same characteristic features. Both Ss revealed a 45,X karyotype. All other family members were normal. The phenomenon can be ascribed to coincidence, transmitted familial character, or familial tendency for loss at anaphase or nondisjunction during meiosis. The last explanation is the most acceptable one. (10 refs.) *S. Glinsky*

Medical Academy
Warsaw, Poland

2524 HECHT, FREDERICK; & MACFARLANE, JEAN P. Mosaicism in Turner's syndrome reflects the lethality of XO. *Lancet*, 2(7631):1197-1198, 1969. (Letter)

A comparison of many surveys shows that mosaicism is protective of the XO fetus *in utero*. In a series of unselected spontaneous abortions, 21% had chromosomal abnormalities and 17% of these were XO. Not a single case of XO mosaicism was found in this spontaneously aborted material. Only 0.02% of newborns have XO and 29.6% of these are mosaics. The lethality of non-mosaic XO is postulated to result from the uncovering of recessive lethals, the inactivation of a single X chromosome, or the absence of a maternally derived X to express its information first in the zygote. (11 refs.) - *E. L. Rowan.*

University of Oregon Medical School
Portland, Oregon 97201

2525 RIDLER, M. A. C.; & FAUNCH, JANET A. Long arm measurements of chromosomes 4 and 5 with special reference to the cri du chat syndrome. *Annals of Human Genetics*, 32(4):375-381, 1969.

Comparative measurement of the long arms of the B group chromosomes was undertaken in 4 patients with *cri-du-chat* syndrome and in 20 controls. The mean relative lengths were determined on projected photographic images and directly from photographic prints. Although the control measurements gave 4 overlapping distributions, it was concluded that the deleted chromosomes in the *cri-du-chat* cases were number 5 in 3 cases and a number 4 in one. Measurement of the long arm may serve as an adjunct to the estimation of the centromere index and autoradiography in the differentiation of these chromosomes. (8 refs.) *E. L. Rowan*

Kennedy-Galton Centre
Harperbury Hospital
near St. Albans, Hertfordshire, England

2526 MELNYK, JOHN; DERENCSENYI, ANNA; VANASEK, FRANK; RUCCI, ALFRED J.; & THOMPSON, HAVELOCK. XYY survey in an institution for sex offenders and the mentally ill. *Nature*, 224(5217):369-370, 1969.

A survey of 200 tall, antisocial men at a maximum security institution revealed 16 (8%) with Y chromosome aneuploidy. Nine 9 XYY males diagnosed as mentally disordered sex offenders (personality disordered) had normal intelligence; 2 XYY males diagnosed as mentally ill, criminally insane (psychotic) were mildly retarded. The high incidence of an extra Y chromosome in aggressive sex offenders is striking as is the observation that such an extra Y chromosome need not be related to impaired intelligence. (18 refs.) - *E. L. Rowan.*

City of Hope Medical Center
Duarte, California 91010

2527 SPARKES, R. S.; CARREL, R. E.; & PAGLIA, D. E. Probable localization of a triosephosphate isomerase gene to the short arm of the number 5 human chromosome. *Nature*, 224(5217):367-368, 1969.

Gene marker and chromosome studies of a child with the classic clinical picture of the cat-cry syndrome and a deficiency of red blood cell triosephosphate isomerase suggest that the gene for this enzyme is on the short arm of the number 5 chromosome. The chromosome deletion was identified by routine and autoradiographic chromosome studies. The propositus had half-normal enzyme values while both parents had normal values, suggesting that the autosomal recessive deficiency resulted from the hemizygous state of the patient following partial chromosome deletion. (10 refs.) - *E. L. Rowan.*

UCLA School of Medicine
Los Angeles, California 90024

2528 SARAUX, H. Les manifestations oculaires des maladies par aberrations des chromosomes non sexuels (Ocular manifestations of diseases secondary to autosomal abnormalities). *Journal of Medical Genetics*, 7(3):227-238, 1970.

The importance of data on ocular abnormalities associated with chromosomal anomalies is frequently difficult to evaluate. Certain observations can be integrated into a precise phenotype only with further information. In others, marked degenerative disorders, like retinitis pigmentosa, are not accompanied by any known chromosomal abnormality, although they are inherited. Anomalies found in the Marfan and Sturge-Weber syndromes have not been adequately confirmed. It must be concluded that certain chromosomal pairs are not apparent on the ocular plane or involve malformations which are incompatible with the evolution of pregnancy. Three chromosomal groupings are significant. The genes responsible for the development of the optic vesicle are found in Group 13-15. In Group 16-18, an excess of genetic material does not influence eye development, except perhaps in relation to crater-like holes of the disc. Lack of chromosomal material leads to optic atrophy and sometimes to the cleavage syndrome. Group 21-22 is responsible for the ocular symptomatology of mongolism. (36-item bibliog.) - *B. J. Grylack.*

2 Square de L'Alboni
Paris XVI$^{e}$, France

2529 DUNCAN, B. P.; NICHOLL, JOAN O.; & DOWNES, R. An XXXX sex chromosome complement in a female with mild mental retardation. *Canadian Medical Journal*, 102(9): 969-970, 1970.

A rare XXXX sex chromosome abnormality in a female, 10-year-old patient appears to result primarily in lowered mentality, especially verbal intelligence. Sex chromatin and chromosomal studies confirmed the XXXX abnormality in the patient, while chromosomal studies on both parents revealed no apparent abnormalities. Mental deficiency increases with the number of X-chromosomes, with triple-X and tetra-X exhibiting a minimum of physical abnormalities and penta-X distinct abnormalities. (10 refs.) - *S. Glinsky.*

Regina General Hospital
Regina, Saskatchewan, Canada

2530 FABIA, JACQUELINE; & *DROLETTE, MARGARET. Malformations and leukemia in children with Down's syndrome. *Pediatrics*, 45(1):60-70, 1970.

All infants with Down's syndrome (2,421) born in Massachusetts between 1950 and 1960 were investigated for frequency of malformations and leukemia, together with their association with sex, maternal age, birth weight, and karyotype. Over 1/3 (35.6%) had at least one malformation in addition to Down's syndrome. The malformations observed, in order of frequency, were congenital heart defect (691), duodenal obstruction (63), clubfoot (27), cataract (22), imperforate anus (17), syndactyly or webbed fingers and/or toes (15), cleft palate and/or lip (12), and congenital megacolon (9). Cataract, syndactyly, and congenital megacolon predominated among the males, while slightly more females exhibited congenital heart defect. For Ss with cleft palate and/or lip (12Ss) and males with congenital megacolon (7Ss), the mean maternal age was very low (28.2 yrs and 27.8 yrs, respectively). The mean birth weight (2,980 gm) was below that of normal infants (3,279 gm) and those with malformations weighed less than those without malformations ($p=<.02$). The results of karyotype did not seem to be associated with the presence or type of malformation. Of the cases with a single malformation, 751 were observed (805 expected) and of those with 3 or more malformations 20 were observed (5 expected). Twenty-three leukemia cases had a high neonatal death rate, with a shift over time in sex distribution and an indication of an excess in mosaics, yet these cases

did not differ from others in the malformation distribution. (49 refs.) - *S. Glinsky.*

*Harvard School of Public Health
Boston, Mass. 02115

2531 GRAMZA, ANTHONY F., WITT, PETER A.; LINFORD, ANTHONY G.; & JEANRENAUD, CLAUDINE. Responses of mongoloid children to colored block presentation. *Perceptual and Motor Skills*, 29(3):1008, 1969.

Eleven mongoloid children (CA range 66-95 months) were studied to provide comparative data concerning the effects of color on block choices and to investigate block play. Red, blue, green, and gray blocks were presented to the Ss in single color piles for 2 trials and in a multicolor block pile for the other trial. There were no significant indications of preference for any one color or position in Ss' use of blocks. It was observed that 6 Ss (MA range 26-38 months) used blocks in a non-structured fashion, while 5 Ss (MA range 23-53 months) used the blocks in an ordered way that resulted in linear, square, and vertically stacked groupings. No clear trend was present in the number of blocks used per S/trial. (1 ref.) - *J. C. Moody.*

University of Illinois
Urbana, Illinois 61801

2532 PANTELAKIS, STEFANOS N.; KARAKLIS, ARIS G.; ALEXIOU, DIMOSTHENIS; VARDAS, EDDY; & VALAES, TIMOS. Red cell enzymes in trisomy 21. *American Journal of Human Genetics*, 22(2):184-193, 1970.

Several red-cell enzymes in 2 groups of trisomic Ss with Down's syndrome (10 newborns and 17 older children aged 4 to 10 yrs) and in normal controls showed significant increases, particularly in the older group. Peripheral-blood leukocyte cultures preceded karyotyping of the newborn to determine frequency of chromosomal abnormalities. Hematology was performed on all Ss and available parents, and enzyme activity was expressed as micromoles of substrate converted per minute per gram of hemoglobin. In the older group, significant enzyme increases included: phosphohexokinase, 6-phosphogluconate dehydrogenase, hexokinase, and NADPH methemoglobin reductase; in the newborn, only the first 2 were affected. Patients and controls showed much overlap for all enzymes except phosphohexokinase which had 41% higher mean activity in the Down's syndrome Ss. This would indicate a possible localization of the responsible gene on chromosome 21. (46 refs.) - *B. Berman.*

Institute of Child Health
Athens, Greece

2533 PANTELAKIS, S. N., CHRYSSOSTOMIDOU, OLIA-MARIA; ALEXIOU, D.; VALAES, T.; & DOXIADIS, S. A. Sex chromatin and chromosome abnormalities among 10,412 liveborn babies. *Archives of Disease in Children*, 45(239):87-92, 1970.

A sex-chromatin survey of 10,412 neonates to determine frequency of discrepancies between genotype and phenotype found a higher than normal incidence only in cases with Down's syndrome. There were 13 discrepant cases (0.13%), 22 cases of trisomy-21 (0.21%), 3 cases of trisomy-18, and 1 of trisomy-13-15. In 9 cases, there were multiple congenital abnormalities, but the karyotype was normal. Sex-chromatin determination was done blindly on the amnion membrane for each S, and results were compared with the sex phenotype. Among 5,382 phenotypical males, there were 8 discrepant cases. Mothers were divided into 3 social classes (83% belonged to the lower class). Down's syndrome cases showed significantly higher maternal (32.6 yrs) and paternal (38.1 yrs) mean age as well as a higher occurrence of maternal infectious hepatitis than that in normals. The higher frequency of Down's syndrome in this survey may be a result of ethnic group differences in occurrence of infectious hepatitis. (30 refs.) *B. Berman.*

Institute of Child Health
Athens, Greece

2534 BOCZKOWSKI, KRZYSZTOF. XYY karyotype in eunuchoidal phenotypic female. *Journal of Clinical Endocrinology and Metabolism*, 30(1):111-113, 1970. (Letter)

The first reported case of female external genitalia associated with a 47,XYY karyotype was confirmed by autoradiography following referral of the S for amenorrhea. Exhibiting eunuchoidal body type and poor breast development, the S showed no sex chromatin bodies in buccal mucosal smears, no neutrophils with drumsticks in blood smears, and 1 small gonad (probably a testis) only on the right side. The patient, whose IQ on the Wechsler scale was 110, identified with the female sex. (12 refs.) - *B. Berman.*

Medical Academy
Warsaw, Poland



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2535 GECIAUSKAS, MICHAEL A.; & *COHEN, M. MICHAEL. Mesiodistal crown diameters of permanent teeth in Down's syndrome (mongolism). *American Journal of Mental Deficiency*, 74(4):563-567, 1970.

Measurement and comparison of plaster casts of the dentition of 21 males and 29 females of Northwest European ancestry between the ages of 16 and 36 with Down's syndrome with measurements of 658 cases of normal North American Caucasians have indicated that the chromosomal aberration associated with Down's syndrome plays an important role in determining and forming tooth size. The mesiodistal diameters were measured on all of the permanent maxillary and mandibular teeth with the exception of third molars, since many were unerupted or missing. Twenty-seven teeth of the Down's syndrome population showed mean mesiodistal values well below the normal standard. The means of 48 teeth revealed significantly different means from the norm ($p < .01$), while the maxillary first molars and mandibular central incisors yielded differences ranging from the .05 to 0.60 level of significance. The Ss with Down's syndrome displayed an average 3.9% dimorphism as compared to the normal average of 2.84%. The sample studied indicated that a true generalized microdontia exists in a population with Down's syndrome. (11 refs.) - *B. J. Grylack.*

*Tufts University School of Dental Medicine
Boston, Massachusetts 02111

2536 FINLEY, WAYNE, H.; TAYLOR, PEYTON T., JR.; ROSECRANS, C. J.; FINLEY, SARA C.; WALDROP, EDWIN G.; & PITTMAN, C. S. Gonadal dysgenesis associated with a deleted X chromosome. *American Journal of Mental Deficiency*, 74(4):553-557, 1970.

A 13-year-old Caucasian female with phenotypic features of Turner's syndrome and a genotype of 45 chromosomes plus a centric fragment in the majority of leukocyte cultured metaphase plates exhibited a cognitive disturbance (verbal IQ of 92 and performance IQ of 60) and the absence of tumor or virilizing gonadal tissue. The patient was referred for evaluation of developmental and learning retardation. She had short stature, scattered pigmented nevi, intermittent exophoria, slight hypertelorism, widely spaced nipples with small amounts of breast tissue, bilateral cubitus valgus, and shortening of the fourth metacarpals. X-rays showed generalized demineralization of the bones, widening of the spinal ends of the fourth to eighth ribs on the left, slight loss in height of the anterior part of vertebral body of T-12, irregularity of vertebral bodies of the lower thoracic and lumbar spine, and shortening of fourth metacarpals. Peripheral leukocyte cultured metaphase plates had 74% 46,XXp-q karyotype and 26% 45,XO karyotype. The deleted chromosome appeared to be a centric fragment. The parents had normal karyotypes. Buccal smears were sex chromatin negative, and dermatoglyphic findings showed a high ridge count. Total urinary estrogens were 0.14 µg/24 hours; growth hormone 0.6 nanagrams/ml (unstimulated); gonadotrophins 6 mouse units/24 hours; antithyroglobulin antibody positive 1:250, negative 1:2500. This case raises the possibility of an attempt at special education with regard to the particular deficiency associated with abnormal sex chromosome patterns and emphasizes the risk of tumor or of virilizing gonadal tissue if the karyotype interpretation is X plus a fragment. (13 refs.) - *B. J. Grylack.*

University of Alabama in Birmingham
Birmingham, Alabama 35233

2537 MILUNSKY, AUBREY. Glucose intolerance in the parents of children with Down's syndrome. *American Journal of Mental Deficiency*, 74(4):475-478, 1970.

A study of the parents of children with Down's syndrome indicates that a relation may exist between disturbances in carbohydrate metabolism, vascular disease, maternal age, and Down's syndrome. Twenty-four mothers and 18 fathers of 24 children with chromosomally-proved Down's syndrome (all trisomy 21) were in good health and received a minimum of 250g of carbohydrate daily for 3 days prior to a glucose tolerance test (GTT). After an overnight fast, venous blood was drawn fasting and at 15, 30, 60, 90, 120, and 180 minutes after 100 g of glucose was taken orally. When the criteria of the British Diabetes Association, Fajans and Conn, and the United States Public Health Service for the diagnosis of diabetes were applied, chemical diabetes mellitus was noted in 8 Ss, 6 Ss, and 1 S, respectively. A two- to three-fold increase in the prevalence of this disease was noted in contrast to the prevalance observed in a previously reported healthy population. The observed frequency (33.3-38.1%) of some abnormality in glucose tolerance among the parents was particularly striking. Since maternal aging and Down's syndrome are closely related and since disturbances in carbohydrate metabolism have been associated with vascular disease, premature vascular aging and its ischemic consequences may underlie the con-

ception of children with Down's syndrome. (24 refs.) - *B. J. Grylack.*

Tufts-New England Medical Center
Boston, Massachusetts 02111

2538 DYGGVE, HOLGER; & CLAUSEN, JORGEN. The serum immunoglobulin level in Down's syndrome. *Developmental Medicine and Child Neurology,* 12(2):193-197, 1970.

Electrophoretic studies of sera from 79 Down's syndrome patients and from normal controls disclosed no abnormal precipitation lines in immunoelectrophoresis but significant differences in immunoglobulin levels. Controls had been infection-free for 3 weeks before serum evaluations. Qualitative screening of serum was by microimmunoelectrophoresis; quantitative screening was by radial immunodiffusion. There was no significant difference in immunoprecipitates apart from a change of β-1-C globulin into β-1-A or in IgM concentration. IgA level was significantly higher in adult Ss. All Down's syndrome Ss showed higher IgG levels (p=.01) then that of the controls; also adults showed higher mean values (p=.01) for IgA and IgM. The findings suggest that increased immunoglobulin levels are a result of recurrent infections and not an inherent protein abnormality. (22 refs.) - *B. Berman.*

State Institution for Mentally Retarded
Andersvaenge, Slagelse, Denmark

2539 BARGMAN, GERALD J.; & MUSELES, MELVIN. 18-Trisomy syndrome in a girl of eight. *Lancet,* 1(7638):143, 1970. (Letter)

An 8-year-old Caucasian girl with severe mental and motor retardation is one of the fewer than 12 documented 18-trisomy cases known to have survived more than 2 years. A 47,XX,18+ karyotype, with no evidence of mosaicism, was found upon cytogenetic analysis of 85 metaphases. X-rays revealed a 2-year-old skeletal age, ulnar deviations, and open sutures in a brachycepnalic skull. Dermatoglyphic analysis showed hypoplastic ridges and 10 simple arches over the distal manual phalanges. (1 ref.) *B. Berman.*

National Naval Medical Center
Bethesda, Maryland 20014

2540 PERGAMENT, EUGENE. Inheritance of Down's syndrome: Fact and theory. *Lancet,* 1(7637):93, 1970. (Letter)

A female t(DqGq) heterozygote runs a 10% higher risk than a male of having Down's syndrome offspring. Balanced t(DqDq) and t(21q22q) heterozygotes run a low risk of abnormal progeny. Amniocentesis, with selective abortion, should reduce to zero chances of births of abnormal conceptions. (No refs.) - *B. Berman.*

Michael Reese Hospital and Medical Center
Chicago, Illinois 60616

2541 DAVIES, T. S. Bone abnormalities and XXYY. *Lancet,* 1(7637):92, 1970. (Letter)

Two individuals with XXYY chromosomal constitution, discovered in a buccal-smear survey, revealed bony abnormalities. The first, age 50, had greatly enlarged frontal sinuses, dorsal vertebral lipping, thickened clavicles, and generalized osteoporosis; the second, an MR and violently antisocial boy of 12, showed congenital abnormality of only 1 dorsal vertebra. A photograph of the first patient, taken at age 12, showed no sign of the subsequent frontal sinus growth. (1 ref.) - *B. Berman.*

Llanfrechfa Grange Hospital
Cwmbran, Monmouthshire, England

2542 KILGOUR, R.; & BRUERE, A. N. Behaviour patterns in chromatin-positive Klinefelter's syndrome sheep. *Nature,* 225(5227):71-72, 1970. (Letter)

The Heeb and Williams closed field test was used to compare the performance of 2 XXY Klinefelter rams (a 3-yr-old Cheviot and a 2-yr-old Romney) and a Romney lamb with an autosomal translocation with that of a control group of 21 normal rams. Testing procedures were those standardized by Rabinovitch and Rosvold, and test problems were those modified by Pollard. XXY Klinefelter rams fell within the normal range on performance during a 6-day training period, total error score and error elimination score. No detectable defect in "mental" abilities was demonstrated by the experimental rams. (11 refs.) - *J. K. Wyatt.*

Raukura Animal Research Centre
Hamilton, New Zealand

2543 ELLIOTT, DOROTHY; THOMAS, GEORGE H.; CONDRON, COLIN J.; KHURI, NAJWA; & RICHARDSON, FREDERICK. C-group chromosome abnormality (? 10p-): Occurrence in child with multiple malformations. *American Journal of Diseases in Children,* 119(1):72-73, 1970.

A Negro girl with a partial deletion of the short arm of a C-group chromosome had gross

abnormalities which involved the brain and the cardiovascular and renal systems. The infant was delivered by frank breech following premature rupture of membranes during the thirty-fifth week of gestation. Brain abnormalities included absence of olfactory bulbs, hypoplasia of cerebellum and brain stem, and dilated lateral ventricles. In the cardiovascular system, there was right atrial and biventricular dilation, bicuspid pulmonary valve with stenosis, and post-stenotic dilation of the pulmonary artery. The renal system had a unilateral duplex collecting system. Radiographic studies, buccal smear findings, and chromosome morphology suggest that the chromosome involved in this case is not one of the X chromosomes and is most likely a member of the number 10 pair of the C-group. Both parents had normal chromosomes. Although this is the first known case with these clinical and chromosomal findings, the chromosomal picture seems to be the basic cause. (15 refs.) *J. K. Wyatt.*

John F. Kennedy Institute
Baltimore, Maryland 21205

2544 DHADIAL, R. K. New human double trisomy or tetrasomy. *Journal of Medical Genetics,* 7(1):75-76, 1970.

A cell analysis of a first trimester human abortus revealed a modal number of 48 chromosomes. The 2 extra chromosomes were large acrocentrics which belonged to the D group. The embryo seemed to be 2 to 3 weeks of gestational age (wt 1 mm), and chorionic sac seemed underdeveloped. Chromosome analysis of 50 cells revealed a female sex chromosome complement as well as 48 chromosomes. The chromosomes of both parents were normal. This was the mother's third pregnancy; previous pregnancies had ended in miscarriage during the first trimester. This case was the first abortus with 48 chromosomes and 2 extra D group chromosomes with either double trisomy or tetrasomy. (23 refs.) - *J. K. Wyatt.*

Guy's Hospital Medical School
London S. E. 1, England

2545 EL-ALFI, OMAR S. A family with a large Y chromosome. *Journal of Medical Genetics,* 7(1):37-40, 1970.

The large Y chromosome in a father (CA 34) and his 3 sons (CAs 6-6, 5, 3-6) was equal in length to the 13-15 group. These males presented a uniform clinical picture which included behavioral disorder, skeletal overgrowth, straight carrying angle at elbow, abnormal serum protein band, and genital overgrowth. This combination of clinical features suggests a relation between the presence of an abnormal Y chromosome in the father and the occurrence of non-disjunction. The extra material present in the Y of this family may be due to a duplication of a portion of the long arm of the Y chromosome or to a translocation of 2 normal chromosomes in the father. Two sons exhibited moderate MR. A full-term sister who died within 24 hours of birth had Down's syndrome and cyanotic congenital heart disease. Skeletal overgrowth and behavioral disorders have been reported in many 47, XYY males and may be related to duplication of the Y chromosome. (25 refs.) - *J. K. Wyatt.*

Sabah Hospital
Kuwait

2546 MORIC-PETROVIC, S.; & GARZICIC, B. Mother with Down's syndrome and her child. *Journal of Mental Deficiency Research,* 14(1):68-76, 1970.

The fifteenth reported case of pregnancy in a S with Down's syndrome (16 years old) resulted in the birth of an apparently normal child. The mother had a 47,XX,G+ karyotype. Normal and trisomic gametes should be produced in equal numbers but there appears to be some selection against abnormal ova as 7 of the 12 surviving children of these mothers with Down's syndrome were non-mongoloid. (18 refs.) - *E. L. Rowan.*

Institute for Mental Health
Palmoticeva 37, Belgrade, Yugoslavia

2547 CHRISTENSEN, K. R.; FRIEDRICH, U.; JACOBSEN, P.; JENSEN, K.; NIELSEN, J.; & TSUBOI, T. Ring chromosome 18 in mother and daughter. *Journal of Mental Deficiency Research,* 14(1):49-67, 1970.

The first reported example of fertility associated with a ring chromosome 18 was discovered in a mother-daughter pair, both with 46,XX,18r. Both showed MR, unspecific psychotic reactions, and speech defects, and both had microcephaly, a high arched palate, short fingers, and overlaying toes. Mother showed an increased γ-M-globulin concentration and a high total ridge count on dermatoglyphic examination. She later died with reticulosarcoma. (32 refs.) - *E. L. Rowan.*

Child Psychiatric Hospital
Risskov, Denmark

2548 DALLAPICCOLA, B.; & MALACARNE, P. Bone abnormalities and XYY syndrome. *Lancet*, 1(7641):311-312, 1970. (Letter)

Two individuals with the 47,XYY syndrome exhibited bone abnormalities. The first patient, a male, 21 years old, has developed features of the YY syndrome, especially aggressive behavior and great stature. His bone abnormalities included bow craniofacial vault ratio, thick cranial vault, close sella, agenesis of the frontal sinuses, and brachyphalangia of the fifth fingers and toes. The second man, aged 65, exhibited great stature and sexual and social misconduct. Bone abnormalities included thick cranial vault, agenesis of the frontal sinuses, thick clavicles, and generalized osteoporosis. An association may exist between the YY syndrome and bone disorders, but the latter are not of practical value in diagnosing the chromosomal abnormality. (3 refs.) - *S. Glinsky.*

University of Ferrara
44100 Ferrara, Italy

2549 HOOK, ERNEST B.; & KIM, DONG-SOO. Prevalence of XYY and XXY karyotypes in 337 nonretarded young offenders. *New England Journal of Medicine*, 283(8):410-411, 1970.

The XYY genotype was investigated for its possible relation to anti-social behavior in 337 boys (CA 13 to 15 yrs) who were in 2 state institutions for nonretarded (IQ over 70), nonpsychotic juvenile offenders. Cytogenetic studies revealed 4 cases of XYY karyotype, indicating an XYY prevalence 8 times higher than that among newborn infants. The IQs of these boys ranged from 1 to 15 points below boys of the same ethnic group. Two cases of XXY genotype were found. This proportion was not significantly greater than that of newborn populations. The IQs of these 2 boys were 12 and 18 points below the average IQ of boys of the same ethnic group. (3 refs.) - *S. Glinsky.*

Albany Medical College
Albany, New York 12208

2550 PARK, IN-JOO; TYSON, JOHN E.; & JONES, HOWARD W., JR. A 48,XXXX female with mental retardation: Report of a case. *Obstetrics and Gynecology*, 35(2):248-252, 1970.

MR appeared to be the only significant abnormality observable in a female patient with 4 X chromosomes. The patient, a 16-year-old white female born of nonconsanguinous parents, was referred for evaluation of secondary amenorrhea. Although the patient was tall (6 feet) and had been hospitalized 3 times previously, once for repair of an orthopedic abnormality of both feet, physical, chemical, and hematologic evaluations showed no significant abnormalities. She had an IQ of 70 (Wechsler Scale) and was excitable and anxious, but previous EEG evaluation had provided no diagnostic patterns. Analysis of metaphase cells from peripheral blood showed a 48,XXX pattern for 46 of the 50 cells analyzed. Four cells had a 47 chromosomal complement. Family history revealed no evidence of genetic abnormalities. This patient is only the ninth woman reported with this chromosomal abnormality, although up to 1968, 65 cases of 47,XXX females had been reported. In both types of cases the principal effect of the extra X chromosomes appears to be mainly on the central nervous system. (23 refs.) - *M. S. Fish.*

Johns Hopkins University School of Medicine
Baltimore, Maryland 21205

2551 ARAKAKI, DAVID T.; & WAXMAN, SORRELL H. Effect of gestational and maternal age in early abortion. *Obstetrics and Gynecology*, 35(2):264-269, 1970.

Spontaneous abortion occurs earlier when it is associated with abnormal chromosome patterns than when no chromosomal anomalies exist, and increased maternal age appears to be associated with chromosome anomalies of spontaneous abortions. From a total of 127 spontaneous abortions in Hawaii, the following data were collected: gestational ages at the time of the abortion, maternal ages, and classification of the normal and abnormal chromosome patterns (XO, trisomy, trisomy-16, and triploidy). The mean maternal age of all abortions was 27.9 years as compared to the average maternal age in Hawaii of 25.2 years. For the abortions associated with chromosome abnormalities, the mean maternal ages (in years) for each type of anomaly were: 26.4, XO; 30.9, trisomy; 30.1, trisomy-16; 26.3, triploidy. From these data and those reported elsewhere, maternal and gestational ages for spontaneous abortions associated with anomalies classified by chromosome groups were calculated. The shortest mean gestational periods (in weeks) obtained for these chromosome groups were: 9.4, A; 7.9, $A_3$; 8.0, B; 9.4, D; and 9.3, E(17-18). Mean for all abortions in the present study was 10.1 weeks. The highest mean maternal ages (in years) observed were: 31.0, A; 31.8, B; 37.1, C; 36.3, D and 31.8, G. Exceptions to the general trends were noted for triploidy and trisomy-F where mean gestational ages were 12.7 and 11.6 weeks respectively, and mean maternal ages were 26.3 and 28.5 years, respectively. (20 refs.) - *M. S. Fish.*

University of Hawaii School of Medicine
Honolulu, Hawaii 96813

2552 KRUGER, E.; WITKOWSKI, R.; & PIEDE, U. Partielle Trisomie $D_1$--eine seltene Chromosomenanomalie (Partial trisomy $D_1$--A rare chromosomal anomaly). *Humangenetik*, 6:181-188, 1968.

A 29-month-old female patient evidencing signs of an abortive Patau syndrome presented with severe mental and physical retardation, underweight, lack of performance, deep-set ears, eye anomalies, hypotony of musculature, right and left heart hypertrophy, and anomalies in radiographic, dermatographic, and urine analyses. Cytogenetic studies of cultures of peripheral leukocytes revealed 47 chromosomes in all the cells, with the extra chromosome corresponding in shape to the 21-22 autosomes. The phenotypically normal mother and sister exhibited normal chromosome complements. Comparison with other cases indicates that the extra chromosome arises from a deleted chromosome $D_1$ through translocation. The clinical features of partial trisomy $D_1$ are compared with Patau's syndrome. (27 refs.) - *S. Glinsky.*

Kinderklinik "Albert Schweitzer" des Bezirkskrankenhaus
X-1502 Potsdam-Babelsberg, Germany

2553 PFEIFFER, R. A.; & KIERA, W. Dermatoglyphen bei Turner-Syndrom (Dermatoglyphics in the Turner syndrome). *Acta Geneticae Medicae et Gemellologiae*, 27(3):507-522, 1968.

Dermatoglyphic patterns of 81 female patients with Turner syndrome were analyzed with regard to the cytogenetic findings and compared with the data from 112 male and female normal relatives. No pathognomonic characteristics were found on the palm prints and fingerprints of women with X-monosome or deficiency except shifts in pattern. The quantitative traits of total ridge count, a-b ridge count and *atd* angle were shifted to an elevation of the means. Centric patterns on the hypothenar area as well as a longitudinal alignment of the main lines and transverse creases were found fairly frequently. Only the fingerprints show the influence of the sex chromosome number upon the ridge count. There is no corresponding validity of palmar characteristics. In the Turner syndrome, a normal phenogenetic principle is pathologically increased. (23 refs.) - *S. Glinsky.*

Wilhelms-Universitat
Munster, Germany

2554 PERGAMENT, EUGENE. The Gp- chromosome in meiosis. *New England Journal of Medicine*, 282(15):875, 1970. (Letter)

Various studies have found the Gp- chromosome in conjunction with disrupted meiosis, but the chromosome has been found in persons with different phenotypic features, both healthy and with developmental disorders. No definite link can be established until families are examined omitting aneuploid propositi, or until the Gp- chromosome is determined in normal carriers whose conceptions are later karyotyped for possible aneuploidy. (8 refs.) - *S. Glinsky.*

Michael Reese Hospital and Medical Center
Chicago, Illinois

2555 WILCOCK, A. R.; ADAMS, F. G.; COOKE, PATRICIA; & GORDON, R. R. Deletion of short arm of No. 4(4p-)-- A detailed case report. *Journal of Medical Genetics*, 7(2):171-176, 1970.

A patient with deletion of the short arm of a B group chromosome exhibited features not identifiable with the *cri-du-chat syndrome*. The child, who died at 3 months of age of an uncorrectable systolic murmur, presented with marked hypotonia, feeble cry, failure to suck or initiate movement, flattening of skull top, bulging forehead, micrognathia, scalp skin dysplasia, squashed nose and prominent eyes. Investigations confirmed many internal abnormalities and an almost complete deletion of the short arm of one of the B(4-5) group. Experience with 7 other cases establishes that this case did not suffer from the *cri-du-chat* syndrome. The clinical features do not fully justify identifying a deletion of the short arm of 4 syndrome but suggest it. (9 refs.) - *S. Glinsky.*

Sheffield Children's Hospital
Sheffield, England

2556 SUNE, MARGARETE V.; CENTENO, JUDITH V.; & SALZANO, F. M. Gonadoblastoma in a phenotypic female with 45,X/47,XYY mosaicism. *Journal of Medical Genetics*, 7(4):410-412, 1970.

A white, 21-year-old chromatin negative, phenotypic female with 45,X/47,XYY mosaicism exhibited gonadal dysgenesis. The patient exhibited short stature, primary amenorrhea and slight hirsutism in the face and limbs. Pelvic examination revealed hypotrophic labia majora and prepubertal type nymphae, while left ovary microscopical examination showed gonadoblastoma. The karyotype was a mosaicism of 45,X/47,XYY. The association in this case of gonadal dysgenesis with gonadoblastoma renders it unique. (18 refs.) - *S. Glinsky.*

Universidade Federal do Rio Grande do Sul
Porto Alegre, RS, Brazil

2557 SUTHERLAND, GRANT R. Chromosome abnormalities in newborn babies. *Australian Journal of Mental Retardation*, 1(3): 77-81, 1970.

Data on chromosomal abnormalities at birth provide essential information on their frequency and on identification of affected individuals. Techniques for identification include recognition of a clinical syndrome resulting directly from a chromosomal abnormality, sex-chromatin studies to detect numerical aberrations of the X chromosome and some structural anomalies, and chromosome analysis--the only technique capable of detecting all anomalies. Many data are available for the most common autosomal abnormality--mongolism (47,21+). Incidence of chromosomal aberrations in newborns is best determined by studying consecutive live births in hospitals, but this is limited by sample quality. It is imperative that many more newborns be screened if even relative frequencies of chromosomal abnormalities are to be ascertained. (30 refs.) - *B. Berman.*

St. Nicholas Hospital
Carlton South, Victoria, Australia, 3053

2558 FLYNN, HELEN; CHAKANOVSKIS, JOHANNA E.; PITT, DAVID; SUTHERLAND, G.R.; & FERGUSON, JEAN. Three children with 47 chromosomes. *Australian Journal of Mental Retardation*, 1(3):82-88, 1970.

Three cases of young females with 47 chromosomes presented MR, several congenital anomalies, but no similar overall pattern. Although they exhibited several trisomy D and E aspects, the cases had insufficient similarity to identify the extra chromosome. The first girl was SMR with a karyotype of 47, XX,?. The second girl had an IQ of 16-25 at age 4 and a karyotype identical to that of case 1. The third girl had an MA of 20 months at 10 years of age and a 47,XX,met karyotype. Variations in reported phenotypes possibly indicated variable chromosomal origin or even no specific chromosome-phenotype association. (No refs.) - *B. Berman.*

No address

2559 HIRSCHHORN, KURT. Chromosomal abnormalities I: Autosomal defects. *Hospital Practice*, 5(2):39-49, 1970.

Since 1956, great advances have been made in human cytology, due to the identification of individual chromosomes. With karyotypes based on the length of chromosomes and the position of their centromere, combined with autoradiography to note differences in time of replication, at least 14 of the 22 autosomal pairs can be regularly identified. The most obvious chromosomal abnormality is trisomy, and this may result from meiotic nondisjunction, mitotic nondisjunction (associated with mosaicism), and translocation. Subtle translocations in germ cells may someday be identified in congenital malformations, the etiology of which is presently unknown; similar chromosomal derangements have been implicated in some neoplastic diseases. Further research in this area will produce some of the most significant work of the coming decade. (3-item bibliog.) - *E. L. Rowan.*

Mount Sinai School of Medicine
New York, New York

2560 MYHRE, S. A.; RUVALCABA, R. H. A.; JOHNSON, H. R.; THULINE, HORACE C.; & KELLEY, V. C. The effects of testosterone treatment in Klinefelter's syndrome. *Journal of Pediatrics*, 76(2):267-276, 1970.

Five males with Klinefelter's syndrome verified by karyotype were treated with testosterone for a period of 7 months and evaluated in terms of physical features, bone age, adrenal function, and behavioral change. All developed an apparent increase in muscle mass, a more masculine body contour, and advanced secondary sex characteristics. Bone age increased in all. There was suppression of adrenal function. All Ss developed a more masculine body image and were more assertive. This treatment appears to be appropriate for the adolescent with this syndrome. (32 refs.) - *E. L. Rowan.*

Ranier School
Buckley, Washington

2561 HECHT, FREDERICK; DELAY, MARLEEN; SEELY, J. RODMAN; & STODDARD, GAYLE R. Meiotic evidence in Down's syndrome for 21/21 chromosome translocation or isochromosome. *Journal of Pediatrics*, 76(2): 298-301, 1970.

Meiotic chromosomal study of testicular tissue from a 19-year-old male with Down's syndrome due to 21/G translocation identified his translocation as 21/21 or isochromosome 21 rather than 21/22. In diakinesis-first metaphase, there were 24 chromosome bodies and no trivalent structures. This technique has potential value in genetic counseling where the risk to a mother with *de novo* 21/G translocation of bearing further children with Down's syndrome is 100% if the trans-

location is 21/21 but only 14% if it is 21/22. (13 refs.) - *E. L. Rowan.*

University of Oregon Medical School
Portland, Oregon 97201

2562 SUMMITT, ROBERT L. Chromosome nomenclature. *Journal of Pediatrics,* 76(2): 314-323, 1970.

The chromosome nomenclature proposed by the Chicago Conference in 1966 should lead to standardization in the field of cytogenetics. This nomenclature includes provisions for numerical aberrations, mosaicism, and structural abnormalities. Inversions, deletions, isochromosomes, ring chromosomes, and translocations can be reported with consistency and in a shorthand form. Extensive tables, diagrams, and examples of karyotypes are included with the text. (7 refs.) - *E. L. Rowan.*

No address.

2563 WILCOCK, A. R.; ADAMS, F. G.; COOKE, PATRICIA; & *GORDON, R. R. Deletion of short arm of No. 4 (4p)--A detailed case report. *Journal of Medical Genetics,* 7(2):171-176, 1970.

The fifth reported case of deletion of the short arm of number 4 chromosome was an infant girl with marked physical and mental retardation. The S had an odd facies with micrognathia, prominent orbital ridges, and frontal bossing. A cleft palate, ventricular septal defect in the heart, and absent uterus with streak ovary were also found. There is a general similarity in the cases with this defect but none as striking as the *cri-du-chat* syndrome associated with a short arm deletion of the other B chromosome, number 5. (9 refs.) - *E. L. Rowan.*

*Sheffield Children's Hospital
Sheffield, England

2564 GACS, G.; SCHULER, D.; & SELLYEI, M. Familial occurrence of congenital malformations and ring chromosome (46,XX, Cr). *Journal of Medical Genetics,* 7(2):177-179, 1970.

A 2-year-old girl demonstrated multiple congenital malformations including microcephaly, hypertelorism, epicanthus, low-set ears, gothic palate, hypoplastic labiae, pedal syndactyly, and marked psychomotor and mental retardation. Chromosomal studies showed a ring chromosome in Group C which was not the X chromosome. A co-twin of the proposita had had multiple malformations, and there were numerous other miscarriages and malformations in the family. (5 refs.) - *E. L. Rowan.*

University Medical School
Budapest, Hungary

2565 LIEBERT, PETER S. Gastric duplication and multicystic kidney associated with gonadal dysgenesis. *Clinical Pediatrics,* 9 (1):60-62, 1970.

The first reported occurrence of both gastric duplication and multicystic kidney in Turner's syndrome is described. The S, a 2-day-old female, had edema of the dorsum of the hands and feet, loose folds of the lateral neck, and a low posterior hairline, all pointing to gonadal dysgenesis. Two masses were palpable, 1 in the epigastrium, the other in the left flank. An inferior vena cavagram and intravenous urogram visualized the right kidney but not the left. An exploratory laparotomy revealed a large cystic mass attached to the stomach but with no evidence of communication between the stomach and the lumen of the cyst. The mass in the left flank was a lobulated multicystic and dysgenetic left kidney with no visible parenchyma. Both masses were removed. Histologic examination indicated the abdominal mass to be a gastric duplication with a mucinous epithelial lining and a 2-layered muscular wall. A buccal smear was chromatin-negative; 45 chromosomes with an XO configuration were present. (10 refs.) -*M. S. Fish.*

Jefferson Medical College
Philadelphia, Pennsylvania 19107

2566 Errant genes. *British Medical Journal,* 1(5692):315-316, 1970. (Editorial)

Recent advances in biochemical genetics have provided considerable information regarding the number and types of variations of diseases known as "inborn errors of metabolism." A recent count indicated that 58 such diseases are now known; however, different types of the same disease are also known to exist. An aberrant gene may eliminate entirely the production of a particular enzyme or it may produce a protein chain which differs enough from the normal one to cause only a change in the rate of a particular reaction which the enzyme controls. A number of these abnormal proteins cause recognizable diseases; others do not. For example, almost a hundred variants of the α and β polypeptide chains of hemoglobin A are

known. Most of the differences are attributable to a single change in one of the bases of the gene's DNA; however, many of the variants do not appear to cause disease. Now that many of these disorders can be related directly to the structure of the gene, recent knowledge regarding the structure and its many possible variations and subsequent effects on metabolism can lead to better management of these diseases. (13 refs.) -*M. S. Fish*

2567 RUNDLE, A. T.; & ATKIN, JULIA D. Urine levels of leucine naphthylamidase (aminopeptidase) and sex chromosome abnormalities in man. *Journal of Mental Deficiency Research*, 13(4):258-266, 1969.

A correlation appears to exist between urinary output of leucine naphthylamidase (leucine aminopeptidase, LAP) and certain types of sex chromosome anomalies. Of the 53 adult Ss with known sex chromosome complements 11 had XX, 14 had XY, 8 had XXY, 5 had XXYY, 4 had XXXXY, 9 had XYY and 2 had XXX. Urinary LAP was determined by incubation of urinary dialysate with L-leucyl-β-naphthylamide, followed by diazotization of the liberated naphthylamine and its conversion to a stable azo dye which could be measured colorimetrically. Those with high urinary levels of LAP included the XY, XYY, and XXYY males (range 71-187 Goldbarg and Rutenberg units/24 hours); low excretion patterns were found for the XX, XXY, and XXXXY females (range 18-92 Goldbarg and Rutenberg units/24 hours). Data on XXX females were inconclusive. Since XXY and XXXXY males usually have reduced testicular function, urinary LAP levels were determined for 1 male with gross hypogonadism and 3 males with undescended testes. LAP levels were within the female range for all but 1 of the latter group, indicating that steroid production may be correlated with urinary LAP levels. The method has limited diagnostic value for sex chromosome anomalies, although unlike chromatin studies, it can help to distinguish between XXY and XXYY patterns. (20 refs.) -*M. S. Fish*.

St. Lawrence's Hospital
Caterham, Surrey, England

2568 ARIAS, DORALYS; PASSARGE, EBERHARD; ENGLE, MARY ALLEN; & GERMAN, JAMES. Human chromosomal deletion: two patients with the 4p-syndrome. *Journal of Pediatrics*, 76(1):82-88, 1970.

Partial deletion of the short arms of a No. 4 chromosome is associated with prominent glabella, cleft palate, deformity of the iris, misshapen nose, hypospadias, and severe growth, motor, and mental retardation. Two children, Caucasian males of healthy, unrelated parents and each with normal sibs (1 and 3), were examined at approximately 4 months of age. In addition to the deformities both had in common, roentgenograms and electrocardiograms on 1 S disclosed enlargement of the right atrium, ventricle, and main pulmonary artery. Angiocardiographic studies of this S revealed an atrial septal defect of the ostium primum type. No cardiac abnormality was found in the other S. Standard cytogenetic techniques were applied to dividing blood lymphocytes and skin fibroblasts. A small segment of the short arm of a Group B(4-5) chromosome was found missing in all cells. Autoradiographic studies with $H^3$-thymidine-labeled lymphocytes showed that chromosome No. 4 was affected (relatively late in completing DNA synthesis in both arms in contrast to early completion of synthesis in the long arms but late in the short arms which is characteristic of chromosome No. 5). In the *cri du chat* syndrome chromosome No. 5 is similarly affected (5p-). Cytogenetic studies of the cells of the 4 parents showed no abnormalities. Eight other cases of the 4p- syndrome have been reported. (12 refs.) -*M. S. Fish*.

University of Miami School of Medicine
Coral Gables, Florida 33146

2569 NORA, JAMES J.; & SINHA, ANIL K. Direct male-to-male transmission of the XY Turner phenotype? *Lancet*, 1(7640):250-251, 1970. (Letter)

Recent evidence of male-to-male transmission of the Turner syndrome would tend to indicate the possibility of an XY Turner phenotype rather than an X-linked dominant mode of inheritance. The latter had been indicated previously since, until the present case, all known transmissions were from female to male and female equally. The evidence for male-to-male transmission is based on a father with 6 (38%) of the 16 stigmata of familial Turner phenotype and a son with 9 (56%) of the stigmata. Previous patients averaged 69%. The simulation of X-linked dominant inheritance could be caused by the diminished fertility of the XY Turner phenotype. (3 refs.) -*M. S. Fish*.

Baylor College of Medicine
Houston, Texas

2570 PARKER, CHARLES E.; MAVALWALA, JAMSHED; WEISE, PHILLIP; KOCH, RICHARD; HATASHITA, ALICE; & CIBILICH, SLAVKA. The 47,XYY syndrome in a boy with behavior problems and

mental retardation. *American Journal of Mental Deficiency*, 74(5):660-665, 1970.

The observed elevation of luteinizing hormone in the serum of a S with XYY syndrome is in agreement with previously reported findings and suggests the possible use of this observation as a diagnostic tool. The S was a 17-year-old Caucasian male, who, on examination, was found to be slightly taller than his parents or immediate relatives and appeared normal except for a markedly maxillary overbite and mild bilateral gynecomastia. Psychological examination revealed a Wechsler full-scale IQ of 77 with no suggestion of organic impairment. The S was easily confused under stress and felt inadequate sexually and intellectually. He tended to retreat from emotional challenge, and his emotional needs were infantile. Laboratory studies revealed a small cranium and a calcified pineal body. The serum luteinizing hormone level was 19 milli International Units (mIU)/ml (normal is less than 11 mIU/ml). Karyotype studies revealed a 47 XYY chromosomal complement. Dermatoglyphic examination showed complex patterns on the fingers, and the soles had narrow loops opening toward the tibial side with an associated extralimital triradius, a finding reported previously for XYY Ss. (24 refs.) -*M. S. Fish.*

Childrens Hospital of Los Angeles
Los Angeles, California 90027

2571 ELLINGSON, ROBERT J.; MENOLASCINO, FRANK J.; & EISEN, JAMES D. Clinical-EEG relationships in mongoloids confirmed by karyotype. *American Journal of Mental Deficiency*, 74(5):645-650, 1970.

EEG abnormalities in 94 Ss with Down's syndrome do not correlate with clinical findings except for the fact that they are more frequent in Down's syndrome Ss who have seizures than among those who do not. Of the 94 Ss (CAs 1 mo to 41 yrs), 84 were classified as trisomy G, 5 as D/G translocations, and 5 as 46/47 trisomy mosaics. Medical and social histories, and physical, psychiatric, clinical, and psychological examinations were obtained for each S. In addition, EEG's and karyotyping procedures were performed. Normal EEG's were obtained for 72 (77%) of the Ss. Abnormal EEG's for the remaining 22 Ss were classified as diffuse slow in 10, asynchrony or asymmetry in 2, diffuse spike-and-wave and polyspike-and-wave in 4, and focal sporadic spikes in 6. Analysis of the results and comparison with other studies indicated that EEG abnormalities are more frequent among Ss with Down's syndrome than among nonretarded control groups but lower than among most other groups of institutionalized retardates. Abnormalities among those with Down's syndrome are age-related with most abnormalities observed in childhood. The wide variety of EEG abnormalities among Down's syndrome Ss do not correlate well with behavioral or neurological symptoms; also Ss with Down's syndrome have a lower frequency of seizures than do most other groups of retardates. (19 refs.) -*M. S. Fish.*

Nebraska Psychiatric Institute
Omaha, Nebraska 68105

2572 HSU, LILLIAN Y.; STRAUSS, LOTTE; & HIRSCHHORN, KURT. Chromosome abnormality in offspring of LSD user: D Trisomy with D/D translocation. *Journal of the American Medical Association*, 211(6):987-990, 1970.

Trisomy 13 with a D/D translocation has been found in the karyotype of an infant from parents with other chromosomal abnormalities possibly related to the use of LSD. The S, a female, died from severe respiratory distress 9 hours after birth. Examination revealed multiple deformities including those of the ears, nose, hands, neck, feet, and other skeletal abnormalities. Autopsy revealed a ventricular septal defect, riding aorta without pulmonic stenosis, Eisenmenger complex, atrial septal defect, intrauterine growth abnormalities, absence of olfactory nerves, and renal and cortical abnormalities. Many of these are compatible with trisomy 13 syndrome which, with D/D translocation (46, XX,D-,t(DqDq+)), was confirmed by cytogenetic studies. Chromosomal abnormalities of the parents, both with a history of multiple drug use including LSD, involved possible C but no D/D translocations. (17 refs.) - *M. S. Fish.*

City University of New York
100th Street and Fifth Avenue
New York, New York 10029

2573 GARSON, O. MARGARET; BAIKIE, A. G.; PITT, D. B.; & NEWMAN, N. M. Down's syndrome with translocation-en-tandem: A report of two unrelated cases. *Australian Paediatric Journal*, 6(1):53-56, 1970.

Translocation-en-tandem of 2 G group chromosomes was associated in 2 unrelated female infants with a type of Down's syndrome in which Ss show a lesser degree of MR than do those with the usual trisomic disorder. Chromosome studies indicated the presence of 3 members of group G and an extra medium-sized acrocentric chromosome similar to but smaller than a group D but with shorter

satellited long arms (46,XX,G-,t(GqGq)+). Karyotypes for both sets of parents were normal. One S had an aunt who was reported to have had the characteristics of Down's syndrome. Different mechanisms may operate to produce this type of chromosomal abnormality, now reported for a total of 8 cases; however, the present 2 are believed to involve a break at the distal end of the long arms of 1 G chromosome and the proximal end of the other. (8 refs.) -*M. S. Fish.*

University of Melbourne
Melbourne, Victoria, 3065, Australia

2574 KISTENMACHER, MILDRED L.; & PUNNETT, HOPE H. Comparative behavior of ring chromosomes. *American Journal of Human Genetics*, 22(3):304-318, 1970.

Mitomycin C identified and altered number 9 chromosome (ring) in 2 children with multiple congenital deformities and delayed development. In 1 S, all cells from lymphocytes, skin, and bone marrow with 46 chromosomes were missing a chromosome of the C group and, instead, had a ring-shaped chromosome. When mitomycin C (1 µg/ml) was added to the cultures of lymphocytes for 24 hours, exchanges between the ring and the number 9 chromosome were readily demonstrated. Autoradiographic analysis indicated that a ring chromosome replaced a D-group chromosome in lymphocyte and skin cells of the other S. Mitomycin C did not induce exchanges in this ring chromosome. The D-ring did, however, form dicentric and interlocked rings at anaphase, unlike the larger C-ring. Both rings exhibited coiling abnormalities in the metaphase. Comparison of these findings with other ring-chromosome reports indicates that the genetic constitution of the ring (more than its size) may determine its behavior. (67 refs.) -*M. S. Fish.*

Temple University School of Medicine
Philadelphia, Pennsylvania 19133

2575 TELFER, M. A.; RICHARDSON, C. E.; HELMKEN, J.; & SMITH, G. F. Divergent phenotypes among 48,XXXX and 47,XXX females. *American Journal of Human Genetics*, 22(3):326-335, 1970.

Two 48,XXXX and three 47,XXX females showed no clearly distinguishing clinical manifestations; however, varying degrees of MR and emotional problems were present in all Ss. The 48,XXXX Ss were a 28-year-old white female who had been institutionalized 6 years for MR and a 3 1/2-year-old Negro female with microcephaly, speech problems, and an IQ of 55 but with no apparent emotional problems. The 47,XXX Ss were a 26-year-old white institutionalized MR female, a 20-year-old white female who lived in a mental hospital and had an IQ of 89, and a 23-year-old MR female who had an IQ of 79 and had been sentenced to prison for incorrigible behavior. Dermatoglyphic studies showed reduced total finger-ridge count for all Ss. Comparison of clinical observations of the Ss with other reported cases of extra X chromosome complements did not afford any consistent features. (21 refs.) - *M. S. Fish.*

Elwyn Institute
Elwyn, Pennsylvania 19063

## MEDICAL ASPECTS--MISCELLANY

2576 MITTWOCH, URSULA. Do genes determine sex? *Nature*, 221(5179):446-448, 1969.

There is abundant evidence of a causal relation between chromosomes and heredity, and the process of sex differentiation furnishes the best test of the connection between chromosomal make-up and divergent development. Any change in mitotic cyclical time causes change in growth process, and thus differences in mitotic rates will produce organisms of different size. Thus, smaller size of females may be a result of the 1 to 2% more DNA/cell in females, requiring possibly longer DNA synthesis. Sex differentiation is attributable also to a positive role for the Y chromosome, such as an increase in mitotic numbers at particular developmental stages. This also supports a widely held notion that the male-female difference is largely a quantitative one that could account for a wide range of sexual abnormalities. Chromosomes may be equipped to

control mitotic rates by changes in non-DNA components, supporting a conclusion that differences in chromosomal constitution are associated with differential growth and permit analysis of growth phenomena in terms of cell kinetics. (41 refs.) - *B. Berman.*

Galton Laboratory, University College
London, England

2577 SUZUKI, KOTARO; & PLENTL, ALBERT A. Chronic implantation of instruments in the neck of the primate fetus for physiologic studies and production of hydramnios. *American Journal of Obstetrics and Gynecology,* 103(2):272-281, 1969.

Fifty pregnant rhesus monkeys *(Macaca mulatta)* and their fetuses were prepared (10 mg of intramuscular isoxsuprine hydrochloride and continued fasting for 24 hours before surgery) for chronic implantation of new intrauterine devices in the fetal neck to permit catheterization of a carotid artery or a jugular vein to allow collection of blood by a portable micropump and pressure recordings, esophageal occlusion, introduction of a tracheoesophageal fistula, and tracheal catheterization and collection of tracheal fluid to evaluate its relation to amniotic fluid. Forty-seven fetuses tolerated the procedures adequately, but 5 expired after postoperative actions. In 42 animals in which pregnancy continued for 2 days to 3 weeks following procedures, success was attained. Although much remains to be done in maintaining the integrity of the fetal intrauterine environment, these techniques permit satisfactory intrauterine experimentation. (4 refs.) - *B. Berman.*

Columbia University College of Physicians and Surgeons
New York, New York 10032

2578 GROTA, LEE J. The effects of maternal strain, fetal strain, and mode of delivery on maternal responsiveness and offspring development. *Physiology and Behavior,* 4:105-108, 1969.

A comparison of the effects of normal versus cesarean delivery of Wistar and Charles River CD rats and rearing by natural or foster mothers shows that while differences in survival, growth, and retrieving rates are dependent on the type of delivery and rearing, no significant differences appear in the adult offspring as measured by reaction-to-handling (RTH) tests and plasma corticosterone levels after RTH tests. All fetuses were delivered normally or by cesarean section (at term) and were randomly assigned to Wistar or CD foster mothers (2x2x2 factorial design). A normally-delivered, non-fostered group of each strain served as controls. CD mothers retrieve faster than do Wistar mothers. When the foster mother was of the same strain as the offspring, survival rates of cesarean-delivered fetuses were lower than those of normally delivered fetuses. When the fetal and foster mothers were of different strains, survival rates for both types of delivery were the same. Fetuses reared by CD mothers had the faster growth rates. Average plasma corticosterone concentration of all adult offspring rose from 3.0 to 10.71 µg/100 ml in 15 minutes as a result of the stimulation of the RTH tests. (7 refs.) - *M. S. Fish.*

University of Rochester
School of Medicine and Dentistry
Rochester, New York 14620

2579 Cannabis--yet another teratogen? *British Medical Journal,* 1(5647):797, 1969. (Editorial)

Evidence for the argument favoring prohibition of cannabis use has been provided by a study in Great Britain showing that extracts of cannabis injected intraperitoneally into pregnant rats had teratogenic effects on rat embryos. Cannabis was recommended 15 years ago in Britain as a therapeutic agent. Since then, debate has increased because of the possibility of teratogenesis. The strength of the British study is diluted by the unlikely route of intraperitoneal injection, the presence of fetal malformation in experiments using insulin, penicillin, streptomycin, cortisone, and aspirin, and the relative importance of the United States pharmaceutical market in comparison to its British counterpart. These factors give relevance to the decision of the American Federal Drug Administration rulings on the marketable use of controversial drugs. (3 refs.) - *B. J. Grylack.*

2580 UETE, TETSUO; NISHIMURA, SHURO; OHYA, HISASHI; SHIMOMURA, TORAO; & TATEBAYASHI, YOSHINORI. Corticosteroid levels in blood and cerebrospinal fluid in various diseases. *Journal of Clinical Endocrinology and Metabolism,* 30(2):208-214, 1970.

Blood and cerebrospinal fluid (CSF) corticosteroid evaluations performed simultaneously in normal Ss and patients with meningitis, brain tumor, hydrocephalus, epilepsy, and schizophrenia revealed diurnal rhythms and various biochemical interconnections in readings. CSF and blood levels showed similar diurnal patterns, but CSF maximal peak was somewhat delayed. Positive increases noted

in acute febrile meningitis regressed to normalcy on patient's recovery. The blood-CSF ratio in acute aseptic meningitis showed no significant change, but in tuberculous and septic meningitis, it increased somewhat above normal. In brain tumor, hydrocephalus, epilepsy, and schizophrenia, corticosteroid levels were normal. It is likely that cortisol levels in CSF were closely related to the non-protein-bound levels in blood, but factors controlling the blood-CSF cortisol gradient need additional study. (12 refs.) - *B. Berman.*

Kitano Hospital
Osaka City, Japan

2581 HARNARINE-SINGH, DEOWATTEE; & HYDE, JOHN BASKERVILLE. Post-natal growth of the arterial net in the human cerebral pia mater. *Nature*, 225(5227):86-87, 1970. (Letter)

The richness of the arterial net that covers the cerebral cortex appears to undergo a normal postnatal increase which is completed at the conclusion of the third postnatal month. The anastomoses in the brains of more than 65 infants, declared normal at autopsy, who died in the first 6 months of postnatal life were studied. A comparison of the anastomoses of the brains of infants who died in the first 3 months of postnatal life and infants who survived beyond the third month but died prior to the sixth month revealed a significant correlation ($p < 0.02$) between brain masses and percentage of fields of the pia mater having one or more anastomoses in the younger group but not in the older group. At least 60 fields were studied in the majority of the brains. Most fields had one or more anastomoses, a few had 5 or 6, and many had none. There was also a significant relation (0.01 level) between the brain masses of 28 infants in the younger group and the percentages of microscopic fields which had one or more anastomoses. Most children in this group exhibited congenital abnormalities (1 case of trisome 21) and/or low birth weight. The number of connections between the arteries of the pia mater seems to decrease after the end of the third postnatal month. (8 refs.) - *J. K. Wyatt.*

University of Manitoba
Winnepeg, Manitoba, Canada

2582 MIKAMO, KAZUYA. Anatomic and chromosomal anomalies in spontaneous abortion: Possible correlation with overripeness of oocytes. *American Journal of Obstetrics and Gynecology*, 106(2):243-254, 1970.

Anatomical and chromosomal abnormalities have a strikingly increased incidence in spontaneously aborted fetuses of the younger age groups classified by the degree of embryonic development. From approximately 1,000 specimens, 318 intact or nearly intact conceptuses provided the experimental material which was compared with equivalent specimens of normal embryos and classified by body size and stage of development. Tissue cultures of amnion, cord, skin, muscle, and lung were initiated from 150 abortuses, and sex chromatin tests were performed for all amnion cells and from skin when available. The percentages of structural and chromosomal anomalies, respectively, which were determined by age group were: under four weeks, 100.0 and 75.0; 5-8 weeks, 65.6 and 50.0; 9-12 weeks, 12.3 and 5.3; 13-16 weeks, 10.0 and 6.3; more than 17 weeks, 2.9 and 0.0. Most specimens of less than 8 weeks of age were distinct embryonic failures with loss of embryonic tissue, appearance as a membranous sac or an irregularly formed mass, or were anomalies with malformed heads. Data on chromosome abnormalities were based on examination of 67 specimens, 17 of which were gross aberrations (XO in 2, XO with small metacentric chromosome in 1, trisomy in 7, triploidy in 3, tetraploidy in 2, and double sex-chromatin bodies in 2). Each of this group had structural deformities. A possible correlation may exist between intrafollicular overripeness of oocytes and the failure of the embryo to develop properly. (37 refs.) - *M. S. Fish.*

University of Geneva
Geneva, Switzerland

2583 GUNN, GORDON C.; MISHELL, DANIEL R., JR.; & MORTON, DANIEL G. Premature rupture of the fetal membranes: A review. *American Journal of Obstetrics and Gynecology*, 106(3):469-483, 1970.

An extensive analysis of cases of premature rupture of fetal membranes has provided information on the effect of the rupture on the course of the pregnancy, complications resulting from the rupture, and proper management of such cases. In addition to a critical study of the relevant literature, all cases of premature rupture over a 10-year period at U.C.L.A. Center for the Health Sciences were examined (1,884 of 17,562 deliveries). While the diagnosis of premature rupture usually relates to a sudden passage of fluid, an alkaline pH of vaginal fluid usually will confirm this event which occurs in about 7 to 12% of all pregnancies. In most cases labor occurs within 24 hours after the rupture (latent period) for mature infants but often longer for premature and immature ones. Approximately 20% of the infants delivered in such cases weigh less than 2,500 grams. A long latent period and, pos-

sibly, vaginal examination appear to increase the incidence of amnionitis which places both mother and infant at risk. Perinatal death is also increased in cases of low birth-weight and breech presentations. Antibiotic therapy for either mother or infant is of questionable value in these cases. When estimated fetal size is greater than 2,000 grams, labor should be induced if it does not begin spontaneously in 12 to 18 hours after rupture. Of the 1,884 cases of premature rupture, perinatal death occurred for 77 infants (23 had birth weights of 500-999 g; 42 weighed 1,000-2,499 g; and 12 weighed more than 2,500 g). Diagnosis of primary cause of the deaths was immaturity or prematurity for 34 infants, 10 of which were associated with amnionitis. (139 refs.) - *M. S. Fish.*

University of California Center for the Health Services
Los Angeles, California

2584 ALTROCK, K.; & DEBUCH, H. Fettsauren und Aldehyde von Gehirnphosphatiden Wahrend der Fotalen und Fruhkindlichen Entwicklung des Menschen (Fatty acids and aldehydes of brain phospholipids during fetal and infant development in man). *Journal of Neurochemistry,* 15(11):1351-1359, 1968.

The fatty acid and aldehyde changes or plasmalogenesis of brain phospholipids were investigated during the period of greatest plasmalogen synthesis to gain insight into the functional significance of individual lipoid components. The brains of third, fifth, sixth, and seventh month newborn human fetuses as well as of 3, 7, and 13-month-old infants were studied, and the contents of total lipid, neutral-lipid, and phospholipid fractions estimated. Gas chromatography analysis was performed on the fatty acids as well as on fatty aldehydes of the phosphotides. During the developmental period, there is a decrease in the $C_{16}$ compounds in the fatty acid and aldehyde fractions but an increase in the total $C_{18}$ derivatives. From the third fetal month to birth, $C_{18}$ monoenoic fatty acids and aldehydes first diminish, then increase during myelination, while the amounts of $C_{20}$ and $C_{22}$ polyenoic fatty acids remain relatively constant. Aldehydes with chain lengths other than $C_{16}$-and $C_{18}$-saturated and $C_{18}$-monoenoic compounds were observed in only trace amounts. (35 refs.) - *S. Glinsky.*

Universitat Koln
Cologne, Germany

2585 FORD, AMASA B. Casualties of our time. *Science,* 167(3916):256-263, 1970.

Drastic changes in the human environment, and social and technological metamorphoses have multiplied the sources of death and disability and demand public concern and expert attention. Since 1950, infant mortality rates in the U.S. have ceased to improve, and mortality rates generally have stabilized, with concomitant increases in certain illnesses. Population expansion and movements take their toll as does technological change (environmental contaminants, the automobile). Related to the latter are ecological casualties stemming from air pollution (bronchitis and emphysema). New drugs (products of medical progress) can also kill or maim (congenital anomalies from thalidomide). Medical diagnostic devices are not all boon--they supply many risks (introduction of instruments into the body, radiographic visualization, arteriography, and cardiac surgery). New therapies that extend life also bring lingering illness and increased genetic burdens. Casualties attend social and cultural change (obesity, and arteriosclerosis) and new youth trends (venereal disease). The disabled and the dying require immediate help; this must be met by training personnel and allocating funds. (65 refs.) - *B. Berman.*

Case Western Reserve School of Medicine
Cleveland, Ohio 44106

2586 GRIMWADE, J. C.; WALKER, D. W.; & WOOD, C. Sensory stimulation of the human fetus. *Australian Journal of Mental Retardation,* 1(2):63-64, 1970.

Sensory stimulation by sound may be a useful prenatal test for congenital deafness. The vibration and acoustic component of the fetal environment and the effects of multiple episodes of sound and vibration stimuli on the fetus were investigated in 32 patients in labor. Either an external loud speaker or an intrauterine crystal earphone were used to achieve intrauterine sound pressure levels of 70 - 90 db. Vibration stimuli were either clinical percussion that caused an intrauterine intensity level of 120 db or a mechanical vibrator which caused an intrauterine intensity level of 110 db. A beat rate meter recorded continuous fetal heart beat recordings. A response was defined as a fetal heart rate change of more than 10 beats/minute within 30 seconds of stimulus onset. Of 330 episodes of fetal stimulation, 41% was related to changes in fetal heart rate. The response on 76% of these occasions was a tachycardia of 10 to 60 beats/minute which lasted from 10 to 600 seconds. A bradycardia of 12 to 65 beats/minute which persisted for 10 to 250 seconds was the response on other occasions. Incidence of response was significantly greater for stimulation by percussion. Patients who received opiates during the 8 hours prior to stimulation evidenced significantly less fetal

heart rate change in response to stimulation than patients without analgesics. The responses of normal patients were no different from those of patients with pre-eclampsia, post maturity, or fetal growth retardation. (15 refs.) - *J. K. Wyatt.*

Monash University
Melbourne, Victoria, Australia 3000

2587 HACK, M.; BRISH, M.; SERR, D. M.; INSLER, V.; & LUNENFELD, B. Outcome of pregnancy after induced ovulation: Follow-up of pregnancies and children born after gonadotropin therapy. *Journal of the American Medical Association,* 211(5):791-797, 1970.

Seventy-eight pregnancies following ovulation induced by menotropins and chorionic gonadotropin produced 47 single, 23 twin, 5 triplet, 2 quadruplet, and 1 sextuplet births. Compared with the 1.6% incidence of twinning in normal populations, an abnormally high multiple birth rate of 37.7% was recorded. The abortion rate was 29%; the fetal and neonatal loss was 27%. Incidence of malformations did not differ significantly from other populations and examination of the surviving children at ages 6 months and 1 year showed physical and psychomotor development to be normal. (24 refs.) - *C. L. Pranitch.*

Tel-Hashomer Government Hospital
Tel-Hashomer, Israel

2588 EISENGART, MARVIN; GLUCK, LOUIS; & GLASER, GILBERT H. Maturation of the electroencephalogram of infants of short gestation. *Developmental Medicine and Child Neurology,* 12(1):49-55, 1970.

Studies of infants of short gestation periods indicate that EEG is chronologically age-specific but may not be uniform for infants with very short gestation periods. Ss were 15 clinically normal infants with gestation periods of 29-37 weeks at birth. EEG characteristics by gestational stages were slow waves (1-2 cps) of high amplitude with occipital predominance at 29-32 weeks, faster waves (2-3 cps) with moderate amplitude and no localization at 33-36 weeks, and unlocalized low amplitude waves of 3-4 cps at 37-39 weeks. While the separation of the first 2 stages is quite objective because of the loss of spatial organization, transition from stage 2 to 3 is less pronounced. EEG changes indicate accelerated post partum maturation for infants with gestational ages of 33-36 weeks. (9 refs.) -*M. S. Fish.*

National Institute of Child Health and Human Development
Bethesda, Maryland

2589 OVERBACH, A. M.; DANIEL, S. J.; & CASSADY, GEORGE. The value of umbilical cord histology in the management of potential perinatal infection. *Journal of Pediatrics,* 76(1):22-31, 1970.

Histologic examination of the umbilical cord and placenta can provide useful information on infants at high risk. Fetal adnexa were examined for a group of 351 patients (312 with evidence of potential perinatal infection or asphyxia and 39 associated with maternal diabetes, Rh sensitization, abnormal placentation, or twinning). Sections from the mid-portion of the umbilical cord and a peripheral wedge of placental tissue were examined histopathologically for signs of inflammation as evidenced by extravascular white cell. Either cord inflammation or clinical and immunologic findings prompted further examination by making cultures from blood, spinal fluid, and urine. Results indicated that funisitis was present in 135 (39%) of all cases, in 65 (49%) of the 132 cases of prolonged rupture, in 57 (56%) of the 102 cases of gestational age of less than 37 weeks, and in 42 (57%) of the 74 infants weighing 2,000 g or less at birth. The incidence of cord inflammation was related to the increased incidence of infection in these groups. Neonates with funisitis had an 8-fold increase in the incidence of proved infections. The incidence of perinatal asphyxia (with or without meconium staining) had no significant correlation with cord inflammation. In 2 deaths due to perinatal infection but with no evidence of cord inflammation, a group B β-hemolytic streptococcus was found. In one of these, an infant with a prolapsed cord, fever, diarrhea, and seizures, the infection was cultured from the spinal fluid. (21 refs.) -*M. S. Fish.*

University of Alabama Medical Center
Birmingham, Alabama 35233

2590 NEEL, JAMES V.; SCHULL, WILLIAM J.; YAMAMOTO, MANABU; UCHIDA, SATOSHI; YANASE, TOSHIYUKI; & FUJIKI, NORIO. The effects of parental consanguinity and inbreeding in Hirado, Japan. II. Physical development, tapping rate, blood pressure, intelligence quotient, and school performance. *American Journal of Human Genetics,* 22(3):263-286, 1970.

Although the effects of inbreeding and consanguinity on school children were not related to various indicator traits, the direction and magnitude of the observed consanguinity effects were similar to those of another, more extensive survey. The Ss were 13- to 16-year-old children and their 29- to 59-year-old parents who lived on

Hirado Island, Japan and for whom both consanguinity and inbreeding status had been determined. The children were measured for indicator traits of physical development, blood pressure, tapping rate, IQ, and school performance; parents were similarly measured except for the last 2 traits. Socioeconomic and age effects were analyzed for over 1,000 of the children; the effects of consanguinity or inbreeding in either the adults or the children were not significant. The lack of demonstrable inbreeding effects is comparable to results obtained in a similar survey of Hiroshima and Nagasaki; however, the latter study did indicate significant consanguinity effects on both children and adults. (11 refs.) -*M. S. Fish.*

University of Michigan Medical School
Ann Arbor, Michigan 48104

2591 SCHULL, WILLIAM J.; NAGANO, HIDEYO; YAMAMOTO, MANABU; & KOMATSU, ICHITA. The effects of parental consanguinity and inbreeding in Hirado, Japan. I. Stillbirths and prereproductive mortality. *American Journal of Human Genetics*, 22(3): 239-262, 1970.

Parental consanguinity and, to a lesser degree, maternal inbreeding appear to influence significantly the probability of death of an infant subsequent to parturition; however, their effect on prereproductive mortality or on stillbirths was not significant. Of 10,530 marriages in Hirado Island, Japan, in which either the husband or the wife or both were alive at the time of the census, 15% was consanguineous and 10% involved inbreeding of either the husband or wife or both. The percent of increase in mortality, based on the percent of maternal inbreeding, is 0.4836 ± 0.2257 and is 0.7703 ± 0.1620 as based on percent of fetal inbreeding (parental consanguinity) for marriages in the years between 1920 and 1939. Examination of the census data indicated that the socioeconomic status does not significantly affect these mortality rates. (7 refs.) -*M. S. Fish.*

University of Michigan Medical School
Ann Arbor, Michigan 48104

## DEVELOPMENTAL ASPECTS--PHYSICAL

2592 THOMSON, ANGUS M., The evaluation of human growth patterns. Symposium on Nutrition, Growth and Mental Development. *American Journal of Diseases of Children*, 120(5):398-403, 1970.

Somatic growth and development and its impairment were investigated in terms of the body weight and total height of children in Negro communities in the United States (Washington, D. C.), rural Jamaica, and rural Gambia. Impaired growth is common, and severe or prolonged interruptions may have permanent effects. Such interruptions do the most damage during the 3 critical periods of the final phases of gestation, the period between 6 months and 2 years of age, and adolescence. Improvement can be made only gradually by assuring that the mothers are well-grown and healthy and by affording the fetuses a very high standard of antenatal care in good socioeconomic surroundings. Deviations in the Jamaica and Gambia groups from the chosen standard (a Boston group) are due to malnutrition and disease. Evidence further indicates that retarded somatic growth has a statistical association with impaired neurological and intellectual development. Yet this interpretation must be qualified due to low correlation, cultural differences, questionable objectivity of psychological function measures, test situation uncertainties, and the incompleteness of height and weight measures. These factors suggest a reservation of judgment on the entire question. (31 refs.) - *S. Glinsky.*

Princess Mary Maternity Hospital
Newcastle upon Tyne, NE2 3 BD, England

2593 ORDWAY, NELSON K.; LEONARD, MARTHA F.; & INGLES, THELMA. Interpersonal factors in failure to thrive. *Southern Medical Bulletin*, 57(4):23-28, 1969.

Case reports of 3 infants with varying degrees of failure to thrive illustrate the importance

of interpersonal relations to nurturing infants. All 3 failed to gain and grow adequately despite presumably adequate food intake but improved significantly when individualized and appropriately stimulating care was provided by 1 or 2 persons. Case 1, whose potential growth was depressed (as shown by decline in weight-for-age percentile) while in a foundling home, had a sudden spurt in weight, length, and head circumference after being adopted at the age of 3 months. Case 2 was malnourished and lagging in development when brought to a hospital from her poverty-stricken rural home at the age of 11 months. She failed to improve until cared for regularly by one nurse who took a personal interest in her. After living in the nurse's home for 9 days, the baby gained 600 gm and progressed remarkably in developmental parameters. The mother of Case 3 was mildly depressed, quiet, and appreciative of an undemanding baby. The baby's unfortunate tendency to vomit when picked up led to his being handled as little as possible. Hospital observation of the placid, underweight, 8-month old infant with 3-to 6-week delays in gross motor skills confirmed an impression of suboptimal stimulation. A successful therapeutic program included the patient's family as essential members of the treatment team. (5 refs.) - *J. C. Moody*

University of Oklahoma Medical Center
Oklahoma City, Oklahoma 73104

2594 DOBBING, JOHN. Undernutrition and the developing brain: The relevance of animal models to the human problem. *American Journal of Diseases of Children*, 120(5): 411-415, 1970.

Animal studies provide evidence of a permanent, measurable effect on the physical growth of the brain due to early restriction of diet. Two current hypotheses postulate the occurrence of permanent brain damage during the cell division growth phase or during the period of the "brain growth-spurt." Animal studies have generally supported the vulnerable period hypothesis, as well as the corollaries of invulnerability before and after the growth-spurt and of growth retardation not altering the timing of the growth-spurt. Extrapolation to human brain growth relies presently upon chemical indices, such as DNA and cholesterol levels. The results indicate a separate growth-spurt from 15 to 20 weeks in human gestation distinct from the main period of cell division, regional differences in growth rate with a sequence of events identical to that in animals, and the postnatal nature of the growth-spurt in humans. The evidence suggests that vulnerability of the brain's physical development is not confined to undernutrition, but that growth is reset on a longer program outlasting the period of restriction. Therapeutic correction of deficiencies in MR children must be early, and antedate, as well as cover, the growth-spurt. (20 refs.) - *S. Glinsky.*

Department of Child Health
Manchester 13, England

2595 ELLIS, M. J.; & CRAIG. T. T. A note on the inferiority of retardates' motor performance. *Journal of Motor Behavior*, 1(4):341-346, 1969.

The general inferiority of retardates on motor performance tests is possibly due to contamination of the test by cognitive elements which are by definition inferior in the retardate. In this study, the Ss were 17 EMRs, 17 MA-matched normals and 17 CA-matched normals. Simple instructions minimized the cognitive advantage of the normals, and the use of a novel motor task attempted to eliminate differential practice effects. Performance against trials and intravariance were similar for all groups, whereas trials to criterion showed the EMRs and CA normals achieving criterion faster than the MA normals. In general, EMR performance was intermediate between that for the normal groups, with the older CA normals superior on every measure. The lack of differences suggests that the EMRs were successful in performances free of experiential effects and uncontaminated with cognitive elements. (10 refs.) *S. Glinsky.*

University of Illinois
Urbana, Illinois 61801

2596 O'CONNOR, GAIL; JUSTICE, R. S.; & PAYNE, DAN. Statistical expectations of physical handicaps of institutionalized retardates. *American Journal of Mental Deficiency*, 74(4):541-547, 1970.

A study of more than 17,000 institutionalized retardates in the Western United States has revealed that difficulty in speech is one of the most prevalent handicaps among this population and that 80-100% of young low-IQ retardates are expected to have handicaps in ambulation, arm-hand facility, toilet training, and speech. The probabilities of these disabilities were estimated by the 1960 Tarjan model. In general, the curves based on the current large population sample are comparable to the Tarjan findings, but the present curves are smoother. The very young and SMR individuals continued to show a very low age probability of ambulation, while increased numbers of older low-IQ patients appeared to



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be mildly, rather than moderately handicapped, and an increased number of older high-IQ patients were mildly handicapped rather than nondisabled. In arm-hand use, the young SMR patient showed a high probability of difficulty. SMRs of all ages showed a very high probability of having speech difficulties. The smoothness of the curves suggested that toilet training was related to age and IQ more closely than any of the other handicaps. (3 refs.) - *B. J. Grylack.*

Pacific State Hospital
Pomona, California 91766

2597 DARE, M. T.; & GORDON, NEIL. Clumsy children: A disorder of perception and motor organization. *Developmental Medicine and Child Neurology*, 12(2):178-185, 1970.

Thirty-five outpatient children referred for "clumsiness" associated with visuo-motor difficulties out of context with other developmental aspects fell into 3 etiological groups: specific developmental disorder (19 Ss), MR (12 Ss), and cerebral palsy (4 Ss). Initial diagnosis was made on parental complaints, brief observations and IQ assessments, specifically discrepancies between verbal and performance scores on the Weschler Intelligence Scale for Children. Classification of such patients requires analysis of their various incoordinations and determination of perceptual or motor origins. Early recognition of affected children is imperative; remedies must consider the many components of perceptual motor performance and include guidelines for child, parents, and teachers. Children considered emotionally disturbed, lazy, or backward may indeed have a specific disability of this type; they require special help in preventing secondary emotional disturbances. (12 refs.) - *B. Berman.*

Royal Manchester Children's Hospital
Manchester, England

2598 RARICK, G. LAWRENCE; WIDDOP, JAMES H.; & BROADHEAD, GEOFFREY D. The physical fitness and motor performance of educable mentally retarded children. *Exceptional Children*, 36(7):509-519, 1970.

A comparison by age and sex of the motor performance of a national sample of EMR children with national standards on boys and girls of normal intelligence showed that performance levels of EMRs of both sexes were well below published standards on normal children and that boys were superior within each group. Testing was accomplished with the American Association for Health, Physical Education, and Recreation Youth Fitness Battery. The 7 test items are designed to assess muscular strength, speed of movement, agility, coordination, and endurance. Correlations between IQ and performance scores on each motor performance test item, by sex and CA, were positive but low. The magnitude of the correlations was not materially different for the 2 sexes, and no pattern of change by CA could be discerned. Performance standards for normal children are not appropriate for EMRs. The establishment of separate charts for EMR boys and girls which would plot age changes in physical growth and physical fitness scores on a yearly basis makes possible a composite visual comparison of current and past percentile scores, allows the teacher to identify quickly the skill and fitness weaknesses of each child, and helps to motivate the child. (12 refs.) - *B. J. Grylack.*

University of California
Berkeley, California 94721

## DEVELOPMENTAL ASPECTS--MENTAL

2599 HARTMAN, BERNARD THOMAS; & RICHARDS, GEORGE B. The effect of using a black light apparatus to reduce attention scatter in brain injured children. *Journal of Learning Disabilities*, 2(8):391-394, 1969.

Twenty brain-damaged children with severe reading and perceptual impairments were randomly divided into an experimental and a control group. The testing environment for the experimental Ss was a sound-treated room without windows. Each S was shown 10 stimulus cards with a word and picture on each (learning task) under attention-scatter reduction conditions using a black-light apparatus. The S was then immediately given a matching test

of retention. The control Ss, who were tested in a regular school classroom, were treated in exactly the same manner except that they did not receive the stimulus under attention-scatter reduction conditions. A *t*-test revealed a significant difference ($p<.001$) between the performances of the 2 groups with the experimental Ss scoring higher. (1 ref.) - *J. Moody.*

Lufkin State School
Lufkin, Texas 75901

2600 FLAMER, GEORGE B. Paired-associate learning of retarded children as a function of the normative associations of normal children. *Developmental Psychology,* 1(4):436-439, 1969.

The appropriateness of the use of the free association strength (FAS) of normal children upon the paired-associate learning of MR children was investigated. The Ss were 45 regular fourth graders (Group R), 45 educationally MR children matched in mental age with the fourth graders (Group MA), and 45 educationally MR children matched in chronological age with the fourth graders (Group CA). One-third of the Ss in each group learned a list of high FAS pairs (list 1), one-third learned a list of intermediate FAS pairs (list 2), and one-third learned a list of low FAS pairs (list 3). Group R made the least errors, Group MA was intermediate, and Group CA made the most errors. Performance on list 1 was better than it was on lists 2 and 3, but the means of the latter 2 lists did not differ. Within Groups R and MA evidence of a direct relation between ease of paired-associate learning and FAS was obtained. The results indicate that retarded children with the same MA as normal children had similar associative hierarchies and that word-association norms derived from normal children might reasonably be used on MR children. (10 refs.) - *S. Glinsky.*

California Test Bureau,
Monterey, California 93940

2601 PUSTEL, GABRIEL; STERNLICHT, MANNY; & DeRESPINIS, MICHAEL. Perception of linear expressions by institutionalized mental retardates. *Journal of Psychology,* 73(2): 159-162, 1969.

Since nonconventional linear patterns can result in individually reproduced degrees of consensuality of symbolic referents among normal adults, a study was conducted to determine if consensuality is capable of being replicated in the institutionalized MR. Sixty mildly MR Ss (mean IQ 62) were asked to draw one line which correctly reflected an expressive name (such as "happy") and to give expressive words ("nice, weak") referent to various linear graphics (curved, angular). The results indicated that an angular pattern was predominantly depicted as representing the words "strong" (87% of the Ss) and "hate" (85%). Curved-upward lines were described as "happy" (57%) and downward curved patterns as "sad" (62%). The results support the hypothesis that most groups, including MRs, share relatively stable modes of expression in describing common symbolic patterns, suggesting that primordial meanings exist which operate universally. (4 refs.) - *C. L. Pranitch.*

Willowbrook State School
Staten Island, New York 10314

2602 GRAHAM, NORMAN C. Short term memory and syntactic structure in educationally subnormal children. *Language and Speech,* 11(4):209-219, 1968.

A group of 44 EMRs (mean CA 9 yrs; mean IQ 62) was tested on a short-term memory (STM) task to determine whether language deficiency in some children is caused by inadequate acquisition of linguistic rules or due to some psychological deficit. The Ss were tested for unstructured strings of words and for different types of 8-word sentences. Parallel versions of the sentences insured control for incidental differences between vocabulary and content and permitted statistical tests of reliability. Sentences were presented only once at intervals of 7 seconds. Each S was asked to repeat each sentence. The STM score was the average length of the longest string in each set which the S could recall without error. Results indicate that the main factor in their language deficiency is a psychological, not a linguistic, dimension. (21 refs.) - *C. L. Pranitch.*

University of Birmingham
Birmingham, England

2603 McMANIS, DONALD L. Conservation and transitivity of weight and length by normals and retardates. *Developmental Psychology,* 1(4):373-382, 1969.

The order of occurrence of conservation and transitivity of weight, as well as the order of conservation and transitivity of length, were investigated in 90 institutionalized MRs and 90 elementary school children matched for mental ages between 5 and 10 years. The Ss were grouped as having or lacking operations on weight and length separately and for both combined. Significantly greater than chance proportions had conservation

without transitivity in Ss of both IQ levels who showed discrepant performance in conservation and transitivity. The retardates achieved transitivity much later than the normals. The results support an inference of sequential order in the development of conservation and transition of weight, with conservation appearing first. Deviations from this prediction were possibly due to an erroneous classification of the Ss as nonconserving. (6 refs.) - *S. Glinsky.*

Parsons State Hospital and Training Center
Parsons, Kansas 65357

2604 LEVERTON, RUTH M. Facts and fallacies about nutrition and learning. *Journal of Nutrition Education,* 1(2):7-9, 1969.

Mounting evidence indicates that nutrition influences intellectual development, performance, and learning. Malnutrition seriously inhibits proper structural formation of the central nervous system, particularly when deprivation occurs during the prenatal to 3-year-old period. Subsequently, extreme and prolonged deficiencies cause structural degeneration and seriously impair functioning. The school must promote optimal functioning through adequate health service, classroom teaching of correct food habits and attitudes, school feeding programs assuring proper foods and reinforcing sound eating habits, and parent and community involvement in programs to understand and maximize correct nutrition. (5-item bibliog.) - *S. Glinsky.*

No address.

2605 FOREHAND, REX; & *BAUMEISTER, ALFRED A. Effects of variations in auditory-visual stimulation on activity levels of severe mental retardates. *American Journal of Mental Deficiency,* 74(4):470-474, 1970.

A series of studies indicated that increased auditory-visual stimulation was associated with a decrease in activity level while reduced stimulation produced an increase, and that both increased auditory and visual stimulation resulted in decreased activity. In the first experiment, 9 of 18 SMR males (mean CA = 27.4 yrs) received 5 sessions each of baseline, increased stimulation, baseline, and reduced stimulation. The remaining 9 Ss were given 5 sessions each of baseline, reduced stimulation, baseline, and increased stimulation. The Wilcoxon Matched-Pairs Signed-Ranks Test was applied to the obtained data in 4 separate analyses. Comparison of baseline data revealed significant differences for the effect of stimulation ($p < .005$) and reduced stimulation ($p < .05$). Comparison of the 2 treatment conditions yielded a significant difference ($p < .005$) in which decreased stimulation produced higher activity scores than did increased stimulation. In the second experiment, 8 Ss from a group of 14 male and 2 female SMRs (mean CA = 31.8 yrs) received 4 sessions each of baseline and increased visual stimulation, and the remaining 8 Ss received 4 sessions of baseline followed by 4 sessions of increased auditory stimulation. The Wilcoxon test was applied to the data in 2 separate analyses, which revealed that both visual ($p < .025$) and auditory stimulation ($p < .05$) produced decreases in activity level. The type and intensity of stimulation presented to the S may greatly influence its effect on general activity level. (7 refs.) - *B. J. Grylack.*

*University of Alabama
University, Alabama 35486

2606 GERJUOY, IRMA R.; & * WINTERS, JOHN J., JR. Subjective organization by EMR adolescents in free recall: Bimodal presentation. *American Journal of Mental Deficiency,* 74(4):509-516, 1970.

An auditory investigation employing bimodal presentation has shown that stimuli manifested in group clustered, group random, single clustered, and single random conditions produced no differences in recall, and that associative clustering and recall are aided by objective organization of stimuli. Forty male and 40 female EMR adolescents (mean IQ = 64.89, mean CA = 15.76) were presented with line drawings of 40 words and 2 lists of 20 words each with 5 words from each of 4 categories. Five randomized orders and 5 clustered orders of each list were constructed. In the first session, 10 males and 10 females were assigned at random to each of the 4 groups. In the second session, half of the Ss in each original group were assigned randomly to the single random condition, and half to the auditory random condition. The only significant effect was Trials ($p < .001$) for the first session, with recall improving over trials. Comparison with the requested-clustered condition indicated that the bimodal presentation produced recall that was superior to the unimodal presentation ($p < .001$). Clustering increased at a faster rate for grouped stimuli than for ungrouped stimuli when clustered stimuli were presented. In the second session, a significant Trials effect was noted ($p < .001$). The single random condition in this session produced better recall than the auditory random condition. Analysis showed a significant increase in

clustering over trials as well. (14 refs.) *B. J. Grylack.*

*Johnstone Training & Research Center
Bordentown, New Jersey 08505

2607 SHIPLEY, T. Evoked brain potentials and sensory interaction in the retarded child. *American Journal of Mental Deficiency*, 74(4):517-523, 1970.

Analysis of the auditory, visual, and in-phase audiovisual evoked brain responses from 20 MRs of several different classes has revealed that bimodal responses are much lower in amplitude than a linear summation of the 2 unimodal ones would predict. Responses obtained from a 12-year-old congenitally aphasic child with an estimated IQ of 25 showed slightly supernormal amplitudes but latencies that were slightly smaller than normal. The audiovisual receptor-cortex channels seemed to be operating very close to normal limits. In the responses from a mildly retarded 9-year-old boy with an IQ of 72, evoked potentials were shown best in the channel which presumably recorded more directly from the visual than from the auditory cortical regions, a situation that is probably unique to this S rather than to MR. Another idiosyncrasy was the marked facilitation of the vertex response under the bimodal stimulation. Visual responses from 3 siblings, consisting of an 8-year-old male with an IQ of 95, a 10-year-old male with an IQ of 67, and a 12-year-old mongoloid female with an IQ of 43, were all good, but the response of the sister was noticeably larger and more delayed than that of her brothers. The bimodal responses of the normal child seemed to increase significantly in amplitude, those of the slightly retarded child remained unchanged, and those of the mongoloid child diminished greatly. Comparison of the ratio of the integrated area of positive difference to the integrated area of negative difference, multiplied by 100 (E coefficient), showed clear evidence of destructive interference in the intersensory evoked brain responses of the Ss. (11 refs.) -*B. J. Grylack.*

Bascom Palmer Eye Institute
Miami, Florida 33152

2608 SILVERSTEIN, A. B.; ULFELDT, VIRGINIA; & PRICE, EDETTE. Clinical assessment of visual perceptual abilities in the mentally retarded. *American Journal of Mental Deficiency*, 74(4):524-526, 1970.

The Marianne Frostig Developmental Test of Visual Perception (DTVP) administered to 148 MR children has yielded appreciably higher intercorrelations among subtests and their higher internal consistency reliabilities than those reported for the standardization sample. Their common variance was also higher, and their specific variance was lower. The mean IQ of the Ss on the most recent administration of the Stanford-Binet or Wechsler Intelligence Scale for Children (WISC) was 47.8. Although mean CA was 14.0 years, raw scores were at approximately the same level as those of the average 5-year-old child in the standardization group. The perceptual ages were subjected to a 2-way analysis of variance, and subtests revealed a highly significant difference ($p < .001$). Scores on eye-hand coordination and spatial relationships were significantly higher than those on figure-ground perception and position in space, which in turn were much higher than scores on form constancy ($p < .05$ for each comparison). Almost half of the Ss exhibited a V-shaped profile, with form constancy as low as, or lower than, any other subtest. Correlations of the raw scores on the 5 subtests with age and IQ were positive and, for the most part, highly significant. Correlations with age indicated the operation of some perceptual development, and correlations with IQ indicated that general intelligence played a certain minor role in the test. (5 refs.) *B. J. Grylack.*

Pacific State Hospital
Pomona, California 91766

2609 BLUE, C. MILTON. Influence of mode of presentation, age, and intelligence on paired-associates learning. *American Journal of Mental Deficiency*, 74(4):527-532, 1970.

Investigation of the paired-associates learning ability of 36 MR children and 72 average Ss has yielded significant differences to support the superiority of average Ss of high school age in learning speed over retarded Ss of equal CA and of average Ss over retarded Ss of equal MA. The presented task required each S to learn to associate a color name with a nonsense design taken from the Perceptual Reaction Test. The nonsense figure stimulus members were always presented visually with the response member varied as to sensory channel--vision, audition, and combined channels. The average Ss were grouped into 2 age categories (CA 9-8 to 12-10 and 14-0 to 18-3) in order to be equated with retarded Ss (CA 14-15 to 18-5) on CA and MA. There was no treatment effect or interaction. (9 refs.) - *B. J. Grylack.*

University of Georgia
Athens, Georgia 30601

2610 KELLAS, GEORGE; & BAUMEISTER, ALFRED A. Effect of adaptation level on response speed of normal and retarded individuals. *American Journal of Mental Deficiency*, 74(4):533-536, 1970.

Results of a simple reaction time (RT) task designed to examine the effects of auditory adaptation level (AL) on the response speed of 48 normals and 48 MRs have confirmed predictions from AL theory for both intelligence groups. For each group, 4 subgroups were preadapted to tones of either 100 dB, 35dB, a random combination of 100-65-35 dB tones, or silence. Immediately following adaptation procedures, all Ss received RT instructions emphasizing rapid responses to the tones and were exposed to a series of RT trials with a random presentation of 35, 50, 65, 85, and 100 dB reaction signals. The main effects were intelligence, AL, trial blocks, and intensity. All main effects were significant ($p<.01$) except AL. Reliable interactions were found for AL X Trial Blocks ($p<.05$), Intelligence X Intensity ($p<.001$), and Trial Blocks X Intensity ($p<.01$). Simple-effects analyses of AL X Trial Blocks interaction indicated significant AL ($p<.05$) only within the first trial block, and the simple main effect of trial blocks was reliable only for the 100-dB adaptation group ($p<.01$). (10 refs.) - *B. J. Grylack.*

Bureau of Child Research
Kansas City, Kansas 66103

2611 PIPER, TERRENCE J. Effect of reward value on the expectancy of an event in EMR subjects. *American Journal of Mental Deficiency*, 74(4):537-540, 1970.

A study of expectation and reward with regard to 24 EMR males indicates that a positive value associated with an event does cause that event to be predicted more often by EMRs while the reverse is true when the value is negative. Ss had a mean CA of 13-7 and a mean IQ of 60.3. None suffered from medically verified brain damage. The appearance of a dot on a card as opposed to a blank card constituted the event, and prediction of whether the next card would contain a dot or be blank was the dependent variable. Reward values were 5 pennies (positive), knowledge of results (neutral), and lifting marbles from ice water (negative) for 3 groups of 8 Ss each. Rewards were contingent only upon the appearance of a dot, regardless of response. The 3 groups differed significantly ($p<.01$); the first group was found to respond positively more often than the second, and the second group responded positively more often than the third. A Duncan's Multiple Range Test indicated that the means of all groups differed greatly ($p<.05$). In extinction, the effect over trial blocks was significant ($p<.01$). Ss responded positively less often as trials progressed into extinction, but group-trial block interaction was not significant. (8 refs.) - *B. J. Grylack.*

University of Wisconsin--Milwaukee
Milwaukee, Wisconsin 53211

2612 BLOUNT, WILLIAM R. Retardates, normals, and U.S. moneys: Knowledge and preference. *American Journal of Mental Deficiency*, 74(4):548-552, 1970.

A study designed to test the ability of 20 MRs and 20 normal Ss to discriminate between various amounts of money has shown that both CA and MA contribute to knowledge of the monetary system. Ss were subdivided into 10-member MA 3 and MA 5 retardate groups and CA 3 and CA 5 normal groups and were shown all possible pairs of various amounts selected from small change and large money groups. All Ss were asked to indicate their preference (Want) and which was the greater amount (More). Results of More instructions showed significant effects of population, ($p<.01$), CA:MA ($p<.01$), and Population X CA:MA ($p<.05$)., Younger normal and lower-MA MRs preferred coins to dollar bills while older normals and higher-MA MRs chose the largest denominations. Want instructions yielded significant effects of stimulus ($p<.01$), Population X Stimulus ($p<.01$), and CA:MA X Stimulus ($p<.01$) in relation to small change and large money pairs. Older normals and higher-MA MRs demonstrated want preferences among small change pairs while younger normals and lower-MA MRs chose equally. Normals tended to choose coins in preference to dollar bills while MRs were prone to choose on the basis of the value of the stimuli, with the number of choices per stimulus item increasing with the monetary value of the item. The expectation for More data that MRs would perform better than the MA-control normals, who tended towards chance performance, was largely confirmed. (3 refs.) - *B. J. Grylack.*

University of South Florida
Tampa, Florida 33620

2613 SERSEN, EUGENE A.; ASTRUP, CHRISTIAN; FLOISTAD, IVAR; & WORTIS, JOSEPH. Motor conditional reflexes and word associations in retarded children. *American Journal of Mental Deficiency*, 74(4):495-501, 1970.

Administration of a motor conditioning procedure commonly used in the Soviet Union and

a word-association test to 3 groups of retarded children and to a contrast group of normal children failed to confirm certain Soviet findings on disturbances in conditional reflex activity and verbal functioning in MR. Ss consisted of 142 normal children and 90 children with MR associated with encephalopathy, 62 with MR of unknown etiology, and 59 with Down's syndrome. The normal Ss were siblings of retarded children. Six series of trials were presented to develop elaboration of a positive reflex, its extinction, its restoration, differentiation, reversal of the negative reflex, and reversal of the positive reflex. For the verbal functioning test, 20 substantives representing concepts likely to be familiar to children of low MAs were chosen from the Kent-Rosanoff word list. Four MA levels were used in every comparison except those involving Ss with Down's syndrome in which the number was 3. The greatest number of significant differences between groups appeared in the Down's syndrome-normal comparisons. The mean and range of reaction time were greater for the Down's syndrome Ss on the differentiation series ($p<.01$ and $<.05$, respectively) and in the negative reversal series for the formerly negative reflex ($p<.05$). Close analysis of the data revealed that group differences in the differentiation series involved an increased latency to the positive stimulus, whereas a discrimination-learning situation in Pavlovian terms involves an excitatory and inhibitory process with regard to the positive and negative stimulus, respectively. (8 refs.) *B. J. Grylack.*

Institute for Basic Research in Mental Retardation
1050 Forest Hill Road
Staten Island, New York 10314

2614 FISHER, LAWRENCE. Attention deficit in brain damaged children. *American Journal of Mental Deficiency*, 74(4):502-508, 1970.

Administration of the Stanford-Binet Intelligence Scale and several attention tests has revealed the relevance primarily of IQ with regard to the pattern of attention deficit in brain damaged children. In the first study, normal preschool children were rated by 2 teachers on a 14-item attention rating scale and tested on the Stanford-Binet, and 60 children with MA between 3-4.5 years and IQ not lower than 88 were then given the 5 tests from the Cincinnati Autonomy Test Battery, the Card Test, and Up-Down Test. Significant differences in Stanford-Binet data between low-attending and high-attending normals, determined by teachers' ratings, were found only on MA ($t=2.94$, $p<.01$). In attention test data, significant differences between the low attenders and high attenders were found on the Dog and Bone, Matching Figures, Embedded Figures, and Card tests. In the second study, MA comparisons among brain-damaged groups of EMRs, TMRs with Down's syndrome, and TMRs without Down's syndrome with respect to IQ, sex, and etiology indicated that Down's children did not differ from other TMRs and that sex factors were not decisive for the pattern of deficit with IQ and etiology held constant. IQ *per se* was shown to be more important than specific etiology and sex in differentiating deficit patterns. (10 refs.) - *B. J. Grylack.*

University of Rochester School of Medicine
Rochester, New York 14620

2615 EVANS, ROSS A.; & BEEDLE, RANDALL K. Discrimination learning in mentally retarded children as a function of irrelevant dimension variability. *American Journal of Mental Deficiency*, 74(4): 568-573, 1970.

Discrimination learning of problems in which brightness was irrelevant and variable within or between trials was investigated in 40 MR children with a mean CA of 179 months, mean MA of 77 months, and mean IQ of 55. Sex and distance between size-irrelevant cues, varying within trials, were also independent variables. The equipment used was a modified Wisconsin General Test Apparatus. For all conditions, form (circle versus square) was the relevant dimension. All Ss received identical pretraining, and 5 girls and 5 boys were then assigned at random to the Near and Far conditions of brightness between or within trials. Problems in which the distance between size-irrelevant cues was large were significantly more difficult than tasks with less obvious irrelevant size cues. The main effect of distance was significant at the .05 level, with the Far condition more difficult than the Near one. Neither the main effect of brightness or sex was statistically significant, but a Sex X Brightness interaction was significant at the .05 level. This finding resulted from the fact that boys performed better under within-trials variability than they did under between-trials variability, while the girls performed comparably under both conditions. (14 refs.) - *B. J. Grylack.*

Teachers College, Columbia University
New York, New York 10027

2616 HAYNES, JACK R. Effects of white noise and presentation rate on serial learning in mentally retarded males. *American Journal of Mental Deficiency*, 74(4):574-577, 1970.

White noise does not seem to have any facilitating or arousal-producing effects in retarded Ss. Its effects and the effect of presentation rate on serial learning were investigated in 46 MR males (mean CA 14.4 yrs; mean IQ 60.7). A serial list of 6 words familiar to the Ss was presented by a standard memory drum. Each S was given 20 trials on a serial learning task under 1 of 4 noise conditions at either a 1-second or 4-second rate of presentation. Analysis indicated that the main effect of presentation rates was significant ($p<.001$) but the main effect of noise levels was not. A significant decrease in errors was found over trials. Groups with the greatest reduction in errors under the 4-second rate were the middle and high noise levels, but the effect was evident only in the early stages of learning. MRs can apparently concentrate on a more difficult task in the absence of distraction from extraneous sources, but their threshold for distractibility is much lower under these conditions. (14 refs.) - *B. J. Grylack.*

North Texas State University
Denton, Texas 76023

2617 ROBINSON, ROGER. Neurological development in infants of diabetic mothers. *Developmental Medicine and Child Neurology*, 12(2):227-229, 1970. (Annotation)

Two quite dissimilar studies of cerebral impairment in infants of diabetic mothers (IDM) suggest that, for some infants, fetal-brain retardation results in minor neuropsychological deficits which are still detectable at age 4. The first study (electrophysiological and polygraphic) showed no effect on neural myelination (peripheral nerve-conduction rate in 14 IDMs being similar to that in normal controls) but did reveal some immaturity in IDM EEG patterns since immaturity did not correlate with blood-glucose concentrations). The second study demonstrated that the mean Binet IQ (96) for IDMs at 4 years was significantly lower than that of the controls (103) and, in infants whose mothers had acetonuria, there was significant retardation in Bayley mental and motor scores, postural control, and Binet IQ when compared with controls. Indications are that loss of amino acids needed for keto-acid production diminishes the amount available for fetal cerebral growth--IDM brains weigh less than expected for gestational age. There is urgent need for adequate control of diabetes in pregnancy and prevention of acetonuria. (15 refs.) - *B. Berman.*

Hammersmith Hospital
London, W.12, England

2618 OUNSTED, MARGARET. Fetal growth and mental ability. *Developmental Medicine and Child Neurology*, 12(2):222-224, 1970. (Annotation)

Studies of fetal growth and mental ability revealed a number of categories that may be at risk, notably children who were small-for-dates at birth who showed a mean IQ lower than average. Other findings showed verbal reasoning (VR) scores (for 48,913 children) increased regularly with increasing maternal age and declined with increasing birth order; children born to mothers under 20 and over 40 had the lowest mean IQ; mean IQ was highest for children born in a second pregnancy and declined steadily with increasing pregnancy number. Increase in VR scores with increasing birth weight, in a general population, may indicate differences between, rather than within, families, reflecting in part social-class variables. Intrauterine growth retardation is attributed to maternal, placental, or fetal factors--pathologic, physiologic, or even socio-economic in nature. Detailed prospective studies, embracing all relevant causations, must precede any prognosis for individual babies. (20 refs.) - *B. Berman.*

Radcliffe Infirmary
Oxford, England

2619 BODMER, WALTER F.; & CAVALLI-SFORZA, LUIGI LUCA. Intelligence and race. *Scientific American*, 223(4):19-29, 1970.

The question of a possible genetic basis for the differences in IQ found between the black and white races cannot be answered with currently available data and will be almost impossible to solve in any satisfactory way until there is a substantial reduction in environmental differences between blacks and whites in the United States. Jensen's conclusion that there is a substantial genetic component in the IQ differences found between blacks and whites cannot be supported and minimizes important research findings on environmental effects. Research on environmental factors demonstrates the effects of diet, very early home environment, failure expectancy, and testing conditions on test performance. There is a systematic difference of almost 5 points between the scores of twins and nontwins, regardless of socio-economic and other variables. Considerable

basic work under controlled conditions on the biology and biochemistry of mental development which uses known genetic differences must occur before a fuller understanding of the hereditary factors involved in IQ can be achieved. Innate differences in ability as well as other individual variations should be recognized by educational systems; however, differences should be judged on an individual rather than a racial basis. (6-item bibliog.) - *J. K. Wyatt.*

No address.

2620 LIGHT, RICHARD J.; & SMITH, PAUL V. Social allocation models of intelligence: A methodological inquiry. *Harvard Educational Review,* 39(3):484-510, 1969.

The argument is made that Jensen's hypothesis of strong implication of genetic factors in average Negro-white intelligence difference is technically fallacious and not justifiable by data. A computer simulation of Jensen's methods of studying intelligence in twins demonstrates unreliable estimates derived from the statistical techniques, especially the interaction-effect estimate (sample size and statistical model biased the chief variables, heredity and environment). The Jensen data (parameter estimates and small twin sample, in particular) do not support his estimates of variance in intelligence for which heredity, environment, and their interaction are responsible. If all the crucial elements that influence IQ are to be properly assessed, then research into race, environment, and genetics must consider--as Jensen does not--an environmental feedback process (deriving from physical differences and stimulated by social differentiation processes) in selecting an experimental model and in designing data-collection devices. (4 refs.) - *B. Berman.*

Harvard University
Cambridge, Massachusetts 02138

2621 STINCHCOMBE, ARTHUR L. Environment: The cumulation of effects is yet to be understood. *Harvard Educational Review,* 39(3):511-522, 1969.

Jensen's conclusions about Negro-white intelligence differences are invalidated by his systematic naivete in assessing effects of environment and failure to understand their cumulative quality. Jensen is faulted for applying his twin-study findings (based on a single social group) to genetic aspects of a different group; kinship data merely show there is as much environmental variation within as between families. In treating the larger regression effect for Negroes, Jensen did not equate statuses, and even if he had, he would not have equated environments. He improperly evaluates environmental effects, for environments do not change in spurts as do genes and he needs more awareness of the sociology of cognition. Until research accounts adequately for the cumulative effects of environment and the full consequences of cultural deprivation, conclusions about relative influences of heredity and environment are premature. (4 refs.) - *B. Berman.*

University of California
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2622 SCHAPIRO, SHAWN; & VUKOVICH, KATHERINE R. Early experience effects upon cortical dendrites: A proposed model for development. *Science,* 167(3916):292-294, 1970.

Separate litters of laboratory-bred rats subjected to a wide range of sensory stimuli have yielded information on the neuroanatomical basis for the effects of early experience on later behavior. The animals, stimulated several times a day from birth, showed increases in the number of spines/micrometer and in the number of neurons staining. Electron-microscopic analyses showed the dendrite spine (in cerebral cortex, cerebellum, brain stem, and cord) is a distinctive aspect of the postsynaptic apparatus, and at each dendrite site studied, stimulated animals had more spines/micrometer than did the unstimulated controls. An apparent relation existed between the quantity of neurons staining and the functionally involved neurons at tissue preparation. Use of multidimensional stimuli prevented determination of whether differential spinal and neuron visualization effects reflect specific or non-specific afferent influences upon the developing afferent influences upon the developing neuron. The mechanism by which sensory stimulation speeds up neuronal development is unclear. (18 refs.) - *B. Berman.*

University of California
Los Angeles, California 90024

2623 SHARMA, K. C.; & YADAV, B. P. Degree of mental retardation among convulsive and non-convulsive cerebral palsy patients. *Journal of Rehabilitation in Asia,* 11(1):20-25, 1970.

Patients with cerebral palsy and convulsions had lower IQs ($p = 0.1$) than patients with cerebral palsy and no convulsions. The Binet-Simon test of intelligence and the Stanford-Binet Intelligence Scale were used

to assess 43 males and 29 females with cerebral palsy, 31 of whom had a history of seizures. The non-convulsive group had a mean IQ of 69, while the convulsive group had a mean IQ of 60.6. Grand mal seizures appeared to cause greater damage to the brain than focal seizures. Mean age for onset of seizures was 1-11 years, with 80.6% occurring at 3 years of age or before. There were 15 cases with Jacksonian-type convulsions, 13 cases of grand mal seizures, 2 cases of myoclonic seizures, and 1 case of gross lateral seizure. (18 refs.) - *J. K. Wyatt.*

All India Institute of Medical Sciences
New Delhi, India

2624 HEAL, L. W.; GEORGE, R. T.; & BRANSKY, M. L. The role of cue novelty and dimension dominance in the discrimination shifts of retardates. *Psychonomic Science,* 18(2): 107-108, 1970.

Factors involved in the tendency of MRs to shift attention from one class of cues to another appear to include the relatively temporary effect of reinforcement associated with these classes of cues, the relatively permanent disposition to attend to certain classes of cues and ignore others, and the disposition to attend to novel cues. A 2-stage discrimination task was used to identify conditions that facilitate the tendency to shift from one dimension (color) to another (form). Ss were 49 institutionalized MRs (IQ range 36 to 67; CA range 12 to 38 yrs) who had previously used the apparatus to solve discrimination problems. Dimension dominance training was easy for these Ss, and median errors were very small when a task could be solved on the basis of either color or form. On optional-shift tasks, Ss required to shift dimension dominance took significantly ($p<.001$) longer to reach criterion than Ss whose dimension dominance remained the same. On a task where both dimensions were new and a shift was required, a significant ($p<.01$) number of Ss persisted in their attention to the previously relevant dimension. Although neither the introduction of novel cues nor dimension dominance seemed to be associated with a shift in attention, when these conditions occurred together there was a significant shift in attention away from the originally relevant dimension toward the previously irrelevant one. (1 ref.) - *J. K. Wyatt.*

George Peabody College
Nashville, Tennessee 37203

2625 SCOTT, PHYLLIS M. Some cultural factors related to cognitive functioning (Part II). *Australian Journal of Mental Retardation,* 1(2):43-45, 1970.

Variations in the behavior of the parents of part-Aboriginal families may be related to the development of their children's cognitive processes. Adults appear somewhat unobservant of the physical details of the environment, are preoccupied, respond to feelings in a global manner, and lack a sense of time as well as differentiation of sensory input. Communication for the purpose of sharing is minimal, language output is limited, and language patterns are slurred. Mothers accept much higher levels of emotional dependence from their children than white mothers. Family problems include: closely-spaced, large families; poor housing; financial problems; and unhappy school experiences of parents. These factors may inhibit language development in the child and the development of discriminative, organizational, and problem-solving abilities. Parent disciplinary methods interfere with the development of emotional maturity. The traditional preschool principles of studying and attempting to counteract multiple negative influences in which problems may originate may be a more effective means of reducing MR in this culture than direct intervention in the form of cognitive treatment. (No refs.) - *J. K. Wyatt.*

Monash University
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2626 DARBYSHIRE, M. Some cultural factors related to cognitive functioning (Part I). *Australian Journal of Mental Retardation,* 1(2):40-42, 1970.

Bruner's theory of cognitive development emphasizes the role of environmental influence. It takes the position that intellectual growth is dependent on the availability of social technology in the child's environment and on the unlocking of capacity by techniques that come from contact with the specialized cultural environment. Cross-cultural, sub-cultural, and ethnic group differences in cognitive functioning have been attributed to the varying demands of different cultures, the parochial nature of the concept of intelligence, differing child rearing practices and ways of living, and differences between the focus of socialization practices. Research on sub-cultural and ethnic group differences

in cognitive functioning has been sparse in Australia. Groups who hold socially marginal positions may be expected to demonstrate patterns found for similar groups in other countries. (11 refs.) *J. K. Wyatt.*

Monash University
Clayton, Victoria, Australia 3168

2627 PATTEN, JACK. In defense of the IQ. *Hospital and Community Psychiatry,* 21(4):114, 1970.

Critics who disclaim intelligence tests as not being culture-free must remember that intelligence is only meaningful as it is reflected in behavior within a culture. Misinterpretation of the concept of IQ and misuse of the IQ score by professionals and lay persons are more at fault than the test instruments. Psychiatrists, specifically those employed in MR institutions, misuse IQ when they use it as a system of classification and segregation of residents on the basis of a single number that represents a variety of mental abilities. (No refs.) - *C. L. Pranitch.*

No address

2628 RICHARDSON, FREDERICK. Intellectual sequelae in children and adolescents following prolonged coma due to acceleration concussion. In: Angle, Carol R.; & Bering, Edgar A., Jr., eds. *Physical Trauma as an Etiological Agent in Mental Retardation.* Washington, D.C., Superintendent of Documents, U.S. Government Printing Office, 1970, p. 291-295.

The most damaging disabilities from head trauma follow closed-head injury accompanied by unconsciousness, and severity is directly related to the duration of post-traumatic amnesia, which (in non-focal closed-head injury) appears related to the amount of neuronal loss and structural damage consequent to loss of consciousness. Symptoms after amnesia include anxiety, mental-concentration difficulty, and impaired memory. All patients showed severe academic disabilities and poor comprehension, and are borderline MRs. More severe retardation (IQ 30-60) stemmed from acceleration concussions that required cardiac massage or mouth-to-mouth respiration. However, it is still uncertain how common and severe is mental incapacity following head trauma. (19 refs.) - *B. Berman.*

2629 JENSEN, ARTHUR R. Reducing the heredity-environment uncertainty: A reply. *Harvard Educational Review, 39(3):449-483,* 1969.

The author replies to 7 responses, solicited by the journal editors from eminent psychologists and geneticists, which appeared in the Discussion (HER, Spring 1969) as rejoinders to Jensen's original article on heredity versus environmental factors as determinants of intelligence (HER, Winter 1969). Jensen notes that there is significant agreement with his original position, that the hypothesis of genetic racial differences in mental abilities is a reasonable one and merits further scientific investigation, even among the disagreers. The existing genetic differences are not "inevitable" or immutable, but are best understood as the product of differing historical, social, and environmental selective pressures. Until these variables are adequately researched, public policies in the areas of welfare (which, administered without eugenic guidance, can lead to genetic enslavement of a population) and compensatory education programs are not justified and remain sheer guesswork. Arguments advanced by the 7 respondents on selective breeding, twin studies, individual and group differences, the Bloom model, the role of heredity, and the interval scale of IQ are cited and rejected. Evidence for a substantial genetic component in intellectual differences is among the most consistent and firmly established research findings in the fields of psychology and genetics. Considerable confusion, however, pertaining to population coverage and individual differences, cultural disadvantages deriving from sensory deprivation, associative and cognitive abilities, genetic social class differences in intelligence, and social and educational policy exists, and all of these areas must be further researched. (25 refs.) -*N. Mize.*

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Berkeley, California 94721

2630 KERSHNER, JOHN R. Toward a cognitive theory of psychomotor intervention. *American Corrective Therapy Journal,* 24(4): 105-109, 1970.

The use of activity-based programs in learning has, as its foundation, the theory that stimulation of the central nervous system increases its functional and structural adequacy. Behavioral change results in morphological change. Change is, however, dependent upon physiologic maturation and the level of structural development, and later learning is

dependent upon the acquisition of earlier experience. An equilibrium between selection, plasticity, and reversibility suggests that emphasis upon the latter 2 factors might provide skills to the individual limited by selection. (23 refs.) - *E. L. Rowan.*

University of California
Los Angeles, California 90024

2631 STIMMLER, LEO. Psychological development in treated hypothyroidism. *Developmental Medicine and Child Neurology*, 12(1): 102-103, 1970. (Annotation)

Early diagnosis and treatment and careful follow-up are essential for proper mental development of children with congenital hypothyroidism. Ss were 61 Russian children with a diagnosis of congenital hypothyroidism and coming under treatment at various ages. The number attaining normal development in each group by age of initiation of treatment were, respectively: 9(60%) of 15 started before 6 months; 11 (48%) of 23 starting between 6 months and 2 years; and 6 (26%) of the 23 starting after 2 years. Of the 26 Ss who developed normally, 22 were from the group of 38 whose treatment was deemed adequate; only 4 of 23 with previously inadequate therapy, as indicated by signs of uncompensated hypothyroidism, were normal. The remaining 35 (58% of the entire group) were MR. Except for difficulty in mathematics, the behavior and learning ability of all 26 Ss who developed normally were comparable to that of their healthy schoolmates. (1 ref.) - *M. S. Fish.*

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2632 BRYANT, P. E.; & WEIGHTMAN, JANE B. Discrimination learning and the learning of letters by severely subnormal children. *Journal of Mental Deficiency Research*, 13(4): 221-234, 1969.

SMR children may store information in a specific and selective manner; consequently, in teaching these children to read, the type of perceptual display may be important. In 1 experiment, 10 children (mean CA 11 yrs 9 mos; mean MA 3 yrs 5 mos) and 8 adults (mean CA 22 yrs 6 mos; mean MA 3 yrs 10 mos) were pretrained to discriminate shapes through a series of tests. The experimental sessions involved discrimination of shapes which varied in the same or in 2 different areas. The results indicated that the predicted pattern appeared with the children but not with the adults and that errors were greater when shapes varied in either of 2 areas than when they varied in both or only 1. The second experiment utilized 15 SMR children divided into 2 groups on the basis of mental age (group 1, mean CA 13 yrs 10 mos, mean MA 5 yrs 11 mos; group 2, mean CA 12 yrs 5 mos, mean MA 2 yrs 10 mos). Pretraining was similar to that carried out previously. Test sessions repeated those of the previous experiment except for the employment of alphabetical material. As predicted, both groups made more errors when the letters varied in shape in different areas than when they varied in the same area. Results indicate that in the differentiation of patterns, SMR children learn more easily when the area which holds the differentiating cue is held constant. (7 refs.) -*M. S. Fish.*

University of Oxford
Oxford, England

2633 STEWART, R. R.; WALKER, W.; & *SAVAGE, R. D. A developmental study of cognitive and personality characteristics associated with haemolytic disease of the newborn. *Developmental Medicine and Child Neurology*, 12(1):16-26, 1970.

Few associations appear to exist between the degree of severity of hemolytic disease in infancy and later behavioral characteristics. From a group of 2,205 infants with hemolytic disease, 150 of the 2,082 survivors were selected for follow-up study. Of these, a detailed analysis was obtained for 126. The degree of the disease was classified for the 150 Ss as very severe (31), severe (41), moderate (40), and mild (38). Ages at follow-up were 7-10 years and 11-14 years, respectively, for 80 and 66 of the Ss (77 male and 73 female). Intelligence (Wechsler Intelligence Scale for Children), perceptual-motor development (Bender Gestalt Visuo-Motor Test and Minnesota Percepto-Diagnostic Test), motor development (Sloan revision of the Lincoln-Oseretsky Motor Development Scale), verbal learning (Children's Modified Word Learning Test), and personality (Junior Eysenck Personality Inventory) were assessed. Few abnormalities were observed and those related mostly to visual-motor-preceptual abilities. Emotional tenseness, conscientiousness, and dominance appear to be related to the more severe forms of the disease. (42 refs.) -*M. S. Fish.*

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2634 RAVIZZA, LUIGI; & VALENTE, LIANA. Rapporto tra logica e matematica nella deficienza mentale (Relationship between logic and mathematics in mental deficiency). *Neuropsichiatria Infantile*, 103(September):728-741, 1969.

To ascertain the existence of a correlation, if any, between logic and mathematics in the evolutive age, 72 Ss (CA 7 to 14 yrs) showing a slight degree of MR, and thus of logical ability, and a control group of 28 Ss (CA 6 to 13 yrs) attending elementary school were administered the Wechsler-Bellevue subtest of "mathematical reasoning" to measure achievement for mathematics and the "cube" sub-test of the same scale to measure logical achievement. A good correlation between logic and mathematics was observed in both groups. Small variations could be explained by individual situations and didactic mistakes. The theory set forth by logicism, whereby mathematics is a part of logic, would thus be confirmed and intuitionism refuted, although the possibility of a special talent is not excluded. The presence of the correlation in slightly handicapped subjects would indicate that a harmonic intellectual development occurs here as well, albeit at a lower level than in normal people. (7 refs.) - *G. van Massenhove.*

University of Torino
Torino, Italy

2635 MacMILLAN, DONALD L. Facilitative effect of verbal mediation on paired-associate learning by EMR children. *American Journal of Mental Deficiency*, 74(5):611-615, 1970.

EMR children can utilize verbal mediators in paired-associate learning when these are provided but are unable to utilize them when they must generate the sentences themselves. The Ss, 45 EMR children (28 males and 17 females) from special classes in a public school, were divided into control, experimental, and experimental-control groups. The control group was asked to learn associations of 2 pairs of stimulus and response objects (pretraining) and 6 pairs of stimulus and response objects (test portion). These latter were glasses and cup, scissors and boat, key and brush, watch and ball, knife and bowl, and comb and glass. When shown the stimulus object, the S was asked to recall the response object which the experimenter had identified previously by name only. The experimental group was given short sentences relating each pair of objects in both pretraining and test situations. Ss of the experimental-control group were given the verbal mediators only during the pretraining session but were asked to form and say aloud their own sentences during the test session. The total number of allowable trials was 12, or until 1 correct trial was accomplished. Results showed that the experimental group learned significantly faster than did the control group. Nine control, 2 experimental and 7 experimental-control Ss did not achieve an errorless trial in 12 attempts. Differences in ability to learn a particular paired association appeared to relate to the meaningfulness of the association -- most errors in the experimental group were with "the cup wore glasses." The control and experimental-control groups did not differ significantly on the mean number of trials or on the number of errors. (9 refs.) - *M. S. Fish.*

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2636 BRICKER, WILLIAM A.; & BRICKER, DIANE D. Development of receptive vocabulary in severely retarded children. *American Journal of Mental Deficiency*, 74(5):599-607, 1970.

Structured approaches to facilitate word control over object choice are useful for SMR children classified as learners but not for those classified as non-learners. The Ss were 40 SMR children, chosen on the basis of screening (to eliminate non-responders) and pretest (to eliminate Ss with high initial scores), and evenly divided into 2 experimental and 2 control groups. The experiment utilized a modified Wisconsin General Test Apparatus which contained a variety of objects (toy replicas of food, people, vehicles, clothing, and utensils). The 2 experimental (trained) groups were provided opportunities to select from 2 objects the one which was associated with a verbal command which named the object. For the training sessions a random presentation was utilized for 1 group, a sequential presentation for the other. Correct responses were reinforced by the gift of food or tokens which were exchanged for food. Two untrained groups served as controls (a Hawthorne and a "do-nothing" group) and participated only in pre- and post-tests. The study concluded with a generalization test involving selection from 3 groups of objects: familiar (selected from the original group of objects), unfamiliar (new objects), and duplicate (similar to but slightly different from the familiar objects). Results showed that non-learners were present in both the trained and the untrained groups and that the correct responses of non-learners were approximately equal to chance. The trained learners demonstrated better response in both the post-test and the generalization test than the untrained

learners with the exception that the response rate was nearly equal for both on the unfamiliar objects of the latter test. (9 refs.) - *M. S. Fish.*

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2637 McGEE, JAMES P. II; *MILGRAM, NORMAN A.; & RIEDEL, WOLFGANG W. Prediction of performance by retardates and nonretarded children. *American Journal of Mental Deficiency,* 74(5):637-644, 1970.

In a betting situation with no emphasis on accuracy of prediction, EMR Ss are less accurate in predicting their performance than are non-retarded children performing at the same level. Experimental groups were 40 (15 male and 25 female) EMR Ss (mean CA 22 yrs; mean MA 9.3 yrs) and 40 (20 male and 20 female) children of average intelligence with a mean CA of 6.3 years. Experimental problems were a group of 10 tests (copying designs, number sequence, color span, color counting, digit span, object assembly, memory for designs, symbol matching, block design, and mazes). Each test had 3 tasks of differing degrees of difficulty. In addition, test instruments were employed to measure the relationship between prediction of performance and cognitive and motivational factors. Ss were instructed to rate the 3 tasks of each test in order of difficulty and to predict the most difficult task the S felt he could accomplish correctly. Ss were also divided into incentive and non-incentive betting groups, the former receiving rewards only on performance consistent with the prediction, and the latter being promised rewards at the end of the session with higher rewards for Ss attempting to do their best work. Results showed that both groups overpredicted their performance in the incentive betting, which emphasized accuracy of prediction, with no significant difference between the EMR and nonretarded Ss. In contrast, in the non-incentive betting situation where no restrictions were placed on accuracy of prediction, the EMR Ss were far less accurate in predicting than were the nonretardates. Overestimation may have represented the gratification of verbalizing about high goals rather than any genuine expectation of goal attainment. (18 refs.) - *M. S. Fish.*

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2638 PREHM, HERBERT, J.; & MAYFIELD, SHERYL. Paired-associate learning and retention in retarded and nonretarded children. *American Journal of Mental Deficiency,* 74(5):622-625, 1970.

A comparison of the performance of MR Ss with nonretarded Ss in paired-associate learning has shown that MR Ss have an overall deficit in their ability to learn and a deficit in both their response and associative stages of learning. The experimental groups were: 17 intermediate-level and 2 junior-highschool-level EMR children and 20 upper-elementary and 20 junior-highschool-level nonretarded children. Ss were tested individually with a paired-associate list of 6 nonmeaningful paired associates (nonsense pictorial stimuli and consonant-vowel-consonant response terms which the Ss were required to spell out). Each item remained on the list until the S had made 3 consecutive correct responses. In the response learning stage (first trial upon which each S correctly integrated each of the 6 response terms) the MR Ss required an average of 4.2 more trials than did the nonretarded Ss, and older Ss integrated more quickly than did the younger ones. The MR group required 1.45 trials compared with 0.65 for the nonretarded group in the associative stage (first trial on which S correctly associated the stimulus and response). Similarly in both the original learning and the relearning stages, the retarded group required significantly more trials than did the nonretarded Ss, and immediate and 24-hour recall scores were also significantly lower for the retarded group than they were for the nonretarded group. Age seemed to influence response learning but not associative stage learning. Inability of the MR to discriminate may be a factor in both the response and associative stages of learning. (9 refs.) - *M. S. Fish.*

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2639 INSALACO, CARL. Effects of verbal and consumable reinforcement combinations on concept learning in the mentally retarded. *American Journal of Mental Deficiency,* 74(5):709-710, 1970.

No significant differences appeared in the learning rates among MRs who were tested with a variety of reinforcement combinations; however, in extinction tests, the Reward-Nothing combination is associated with significantly greater extinction than is either the Nothing-Punishment or the Reward-Punishment combination. The experimental group was 60 institutionalized MR Ss divided into 6 subgroups which were matched for CA (mean 19 yrs), MA (mean 8 yrs), sex, and initial operant level. Experimental conditions pro-

vided a 2X3X2 analysis of variance: 2 sequences (verbal followed by consumable reinforcement and vice versa); 3 reinforcement combinations for correct-incorrect responses (Reward-Nothing, Nothing-Punishment, and Reward-Punishment); and 2 different tasks (8 blocks of differing shapes and colors -- the "yes" blocks were square in 1 task and round in the other and the task was to select the proper "yes" block). Reward and punishment, in verbal reinforcement, were the words "Right" or "Wrong," and, in consumable reinforcement, the giving or taking away of candy. "Nothing" meant that no word was spoken or that no candy was exchanged. No significant effects on learning were found for either the sequences or combinations after 100 learning trials; however, when 20 extinction trials (no feedback) on the 2 tasks followed the learning trials, the effect of the combinations was significant, but effects of the trials and sequences were not. Significantly faster extinction occurred with the Reward-Nothing combination than with the other 2. (4 refs.) *M. S. Fish.*

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2640 SEMMEL, MELVYN, I.; & BENNETT, STANLEY W. Effects of linguistic structure and delay on memory span of EMR children. *American Journal of Mental Deficiency*, 74(5):674-680, 1970.

The type of sentence structure, the length of delay before recall, and the type of the delay activity can significantly affect the memory of the EMR child; and the nature and extent of these effects suggest a cumulative interference on inefficiently organized input. Eighty male EMR children, 9-14 years of age, were randomly assigned to 2 main groups based on the type of delay activity (silence or number naming), and each group was divided into 4 subgroups based on the type of linguistic string that the S was asked to learn and recall: context (meaningful and associated sequences of words), anomalous (low association dependencies between words), context reversed (high association between adjacent words but grammatically distorted), and random (low associations and poor English syntax). After stepwise pretraining which consisted of word-sentence repetition and intervals with or without digit repetition, which eventually approximated the conditions of the experiment, the Ss of each subgroup were given a series of increasing lengths of the appropriate word strings separated by varying time intervals (1, 6, or 20 seconds) with or without number naming, depending on the identity of the particular main group. The length of the longest string which was correctly repeated was the score of each S. Analysis of the results showed that decay in memory span increased as the time intervals increased for the number-naming group but not for the silence-interval group, indicating the possibility that Ss of the latter group may have rehearsed their particular word string during the interval. In the former group, number naming may have produced an interference which adversely affected the memory span. The mean memory span for context sentences was significantly higher than that obtained for the other 3 types of word strings. (8 refs.) - *M. S. Fish.*

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2641 SEMMEL, MELVYN I.; BARRITT, LOREN S.; & BENNETT, STANLEY W. Performance of EMR and nonretarded children on a modified cloze task. *American Journal of Mental Deficiency*, 74(5):681-688, 1970.

EMR children have weak grammatical decoding abilities resulting in an increased dependency on simple associative relationships rather than on structural syntactic cues. The Ss were 20 institutionalized EMR and 20 public school EMR children matched for CA (mean 11.8 yrs), MA (mean 8.2 yrs), IQ (mean 70), and sex, and 2 nonretarded groups matched for MA and CA, respectively: 20 Ss with mean MA of 8 yrs, mean CA of 8.2 yrs, and mean IQ of 102.25, and 20 Ss with mean MA of 11.7 years, mean CA of 11.9 years, and mean IQ of 102.30. All Ss were given tasks of completing 40 experimental sentences of 5 different word orders with a word deleted from each: adjective-adjective-noun-verb, adjective-noun-verb-noun, adjective-noun-verb-adjective, noun-verb-adjective-noun, and verb-preposition-adjective-noun. Responses were classified as: grammatical-meaningful, grammatical-non-meaningful, non-grammatical-meaningful, non-grammatical-non-meaningful, and miscellaneous. Results indicated that weak grammatical decoding abilities existed for the EMR Ss when compared with the other groups. Retarded Ss also experienced more difficulty in making responses than did the nonretarded Ss of comparable MA. EMR Ss experienced more success in supplying the missing word from position 4 than in the other positions. All subgroups performed best on the adjective-noun-verb-adjective sequence and poorest on the adjective-adjective-noun-verb sentence. Institutionalized EMR Ss had particular difficulty with deleted adjectives; whereas problems with supplying verbs

characterized the other 3 groups. (14 refs.) - *M. S. Fish.*

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2642 MacMILLAN, DONALD L. Reactions following interpolated failure by nonretarded and retarded subjects. *American Journal of Mental Deficiency*, 74(5):689-691, 1970.

A study of performance of EMR and nonretarded children on a task, following interruption before completion of a previous task, failed to support conclusions of other investigators that the children perceive interruption as a failure. The Ss were 3 groups of children drawn from primary and intermediate classes for EMRs and from regular third and fourth grade classes. The EMR-1 group was 40 Ss with CA ranging from 9-0 to 9-11 years; the EMR-2 group was 40 Ss with MA in the same range; the nonretarded group was 40 children with comparable CA and MA. Members of each group were assigned equally and randomly to experimental and control procedures. Tasks were 6 block designs of 5 red and 4 white blocks each. Control Ss worked on all designs uninterruptedly. Experimental Ss were interrupted after the seventh block on the second and fourth designs. Times for all Ss on the third design (the first after interruption) were recorded. Later, Ss who were interrupted were allowed their choice of completing either an interrupted task or one which they had previously completed. Analysis of data failed to show that the EMR Ss either increased or decreased in performance following interruption. The EMR-1 Ss who chose to complete interrupted tasks required significantly longer to accomplish the tasks than did Ss who chose to repeat a completed task. No relation between choice of repetition and time taken to complete tasks following interruption was evident for the other 2 groups. (7 refs.) *M. S. Fish.*

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2643 MacMILLAN, DONALD L. Effect of input organization on recall of digits by EMR children. *American Journal of Mental Deficiency*, 74(5):692-696, 1970.

Comparisons between 9- and 12-year-old EMR children on recall of visually presented digits suggest that the Ss of older groups benefit significantly more than do the younger Ss from organizing the input stimuli. The Ss were 60 EMR children, 30 with a mean CA of 8.9 years and 30 with a mean CA of 12.8 years. Mean CA, MA, and IQ of the younger (primary) class which was divided into 3 subgroups of 10 Ss each were, respectively, for each subgroup: control, 9.4, 6.1, and 65.6; experimental, 9.1, 5.9, and 64.5; experimental-control, 8.5, 5.6, and 66.5. The older (intermediate) class, similarly divided, had for each subgroup mean CA, MA, and IQ, respectively, of: control, 12.8, 8.2, and 64.2; experimental, 12.8, 8.6, and 67.2; experimental-control, 12.8, 8.4, and 65.1. Control Ss were asked to recall ungrouped digits; experimental Ss were presented grouped digits for recall; experimental-control Ss were pretrained with grouped digits but tested on ungrouped ones. The 3 identical series of digits for the 3 subgroups ranged in number from 3 to 5 for pretraining and from 3 to 9 for experimental sessions. Results showed that older EMR Ss of the experimental and experimental-control subgroups recalled significantly more digits in the correct order than did the younger ones. The difference in recall of control Ss in the 2 age groups did not differ significantly. For the younger EMRs, treatment effects (grouping) did not appear to affect performance; however, a statistically significant difference was observed between the 12-year-old experimental and control subgroups. Organization of input benefits the older group; however, if these Ss are left to their own strategies, their performance shows no significant improvement over that of the younger age group. (8 refs.) - *M. S. Fish.*

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2644 CARLSON, JERRY S.; & *MacMILLAN, DONALD L. Comparison of probability judgments between EMR and nonretarded children. *American Journal of Mental Deficiency*, 74(5):697-700, 1970.

EMR children do not differ from nonretarded children in their ability to predict distributional forms; however, they do differ in ability to justify the prediction, and they are more susceptible to counter-suggestions. Ss were 48 EMR and nonretarded children, classified into 3 groups with mean CA, MA, and IQ, respectively, by group: younger EMR, 8.9, 5.8, and 65.5; older EMR, 12.9, 10.0, and 70.4; nonretarded, 8.9, 9.1, and 102.3. Each S was asked to make a probability prediction as to where a spring-driven ball would stop on a board after stopping points had been marked on 10 previous consecutive occasions, each with a push of equal force. He was next asked to justify the prediction, given a counter-suggestion, asked to make a

second prediction, and to justify the second prediction. After each prediction, ratings were also given to "probabilistic thoughts" of each S based on the reasonableness of his prediction and his justification of it. Analysis of results indicated that while no significant differences in the abilities of prediction appeared among the 3 groups, the second justification and probabilistic thought were significantly in favor of the nonretarded S when compared with the younger EMR group. Other significant contrasts were between: prediction 1 and justification 1 for all groups; prediction 1 and probabilistic thought 1 for all groups; prediction 2 and justification 2 for only the 2 EMR groups; and prediction 2 and probabilistic thought 2 for only the 2 EMR groups. Greater verbal ability of the nonretarded group undoubtedly contributed to the higher justification and probabilistic thought scores. The greater susceptibility of the EMR Ss to counter-suggestions indicates the possibility that intelligence factors other than those measured normally by standard intelligence tests are involved in probabilistic thought processes. (15 refs.) - *M. S. Fish.*

*University of California
Riverside, California 92502

2645 ROSS, DOROTHEA. Effect on learning of psychological attachment to a film model. *American Journal of Mental Deficiency*, 74(5):701-707, 1970.

Attachment of reward value to a film-mediated model facilitates learning and retention in 60 EMR children (33 male and 27 female; mean CA 6 yrs 10 mos; mean MA 4 yrs 4 mos; mean IQ 64.24). Pre-experimental measures of dependent behavior and ability to learn from audio-visual presentations preceded assignment of Ss into 6 groups of 10 Ss each: groups 1 to 4 were the experimental groups and 5-6 were the control groups. Experimental Ss were taught in pre-experimental sessions to attach reward values to model A (a film-mediated model of an age comparable to that of the Ss); control Ss were given exposure to a similar model (B); however, all groups were exposed later to model A in learning situations. The learning tasks were either intentional (model asked Ss to imitate behavior) or incidental (activities described but with no request to imitate). Ss were also divided into groups in which the participation was individual or with 2 other Ss. Results indicated that in individual participation situations, either intentional or incidental, learning and retention clearly favored, in 7 of the 9 experimental measures, the Ss who had had prior associations with the same model over the control groups whose prior associations were with a different model. In 3 of 9 tasks, intentional instruction was significantly superior to incidental instruction, and individual viewing was favored over group viewing for 2 different tasks. Audio-visual presentation to EMR Ss is clearly helpful in the transmission of desirable patterns of social behavior. (18 refs.) - *M. S. Fish.*

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## DEVELOPMENTAL ASPECTS--SOCIAL AND EMOTIONAL

2646 ZIMMERMANN, ROBERT R.; & STROBEL, DAVID A. Effects of protein malnutrition on visual curiosity, manipulation, and social behavior in the infant rhesus monkey. *Proceedings, 77th Annual Convention, American Psychological Association*, 1969, p. 241-242.

Rhesus monkeys maintained on low protein diets showed signs of retarded social development and apathy toward their environment. A group of 4 monkeys, average age approximately 1 year, was maintained on a 3% protein diet for a period of 4 months after a 2-month period with the control group of 4 comparable monkeys, all maintained on a high (22%) protein diet. Visual curiosity (view of a cage containing other infant monkeys), manipulation (3 long chains attached to counters), and social behavior (presence of other compatible monkeys) were measured, and 3 categories of mutually exclusive behavior were recorded: behavior toward others, self, and the environment. Visual response patterns of the deprived Ss were significantly inferior to



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that of the controls. Differences in chain-pulling responses were approximately 4 to 1 (average of 2 pulls/hr for the low-protein group). Comparisons of social cage behavior for the deprived and high-protein group were: activity toward others, 6% and 30% of total time, respectively; and self-stimulating activities, 60% and 45% of total time, respectively. The data suggest that the effects of protein deprivation likely interact with the development of other motivational systems. (1 ref) - *M. S. Fish.*

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2647 RITVO, EDWARD R.; ORNITZ, EDWARD M.; EVIATAR, ABRAHAM; MARKHAM, CHARLES H.; BROWN, MORTON B.; & MASON, ANNE. Decreased postrotatory nystagmus in early infantile autism. *Neurology*, 19(7):653-658, 1969.

Twenty-eight children with a clinical diagnosis of infantile autism showed a decrease in the duration of postrotatory nystagmus when compared with 22 age-matched normal controls. The difference was noted after the Ss were rotated in a Barany chair in a lighted room while they had their eyes open, but the difference disappeared when Ss were blindfolded and rotated in a darkened room. It is hypothesized that autistic children experience a perceptual inconstancy secondary to dysfunction of the vestibular nuclei and central vestibular relationships. A lack of differentiation on the basis of clinical symptoms supports a common disturbance in the regulation of sensory input as the etiology of autism. (30 refs.) *E. L. Rowan*

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2648 STEWART, MARK A. Hyperactive children. *Scientific American*, 222(4):94-98, 1970.

Common symptoms of hyperactivity were assessed in a study of 37 schoolchildren (CA 5 to 11 yrs) with pronounced symptoms of overactivity and inability to maintain concentration, but no chronic disease or special sensory defects. Personality traits were identified by interviewing the mothers of the hyperactive children and a control group of first-grade children. The hyperactive child is extremely restless and fidgety, easily distracted, impulsive, easily upset, noisy, destructive, and incorrigible. Follow-up study of 45 teenagers who had been treated for hyperactivity as children showed little or no improvement in behavior. Evidence for an innate biological basis for hyperactivity includes: feeding problems, disturbed sleep, and generally poor health in infancy; a greater than average likelihood of getting into poisonous substances before the age of 3; restless, short-tempered fathers who were troublesome as children; the dramatically calming effect of stimulant drugs upon hyperactive children; and the considerably greater number of boys than girls so affected. (2 refs.) - *J. Moody.*

No address

2649 WUNDERLICH, RAY C. Hyperkinetic disease. *Academic Therapy*, 5(2):99-108, 1970.

Hyperactivity represents an absence of control over oneself or a breakdown of control over one's behavior. Motor and sensory hyperactivity result from defects in the degree of endogenous stimulation and control relative to the stimulation and control from the environment. The high incidence of allergy in hyperactive children suggests a relationship between the hyperkinetic impulse syndrome and the so-called allergic tension-fatigue state. Stimulant drugs, notably Ritalin (methylphenidate hydrochloride) and the amphetamines, paradoxically have a calming effect on the hyperkinetic child. Various antihistamines and anticonvulsants also are often useful in drug therapy. Controlling the external environment by reducing stimuli and by imposing various stabilizing influences is often therapeutically effective. Holding or touching the hyperactive child also can be beneficial. (14 refs.) - *J. Moody.*

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2650 JACKSON, NIGEL. Educable mental handicap and delinquency. *Educational Research*, 12(2):128-134, 1970.

The incidence of delinquency in 264 EMRs (CA 8 to 18 yrs) was investigated as well as its relation to IQ, physical defect, family neglect, and occupational stability. Almost 30% of the boys and none of the girls had delinquent records. A marginal but not significant tendency existed for the delinquent youths to be more intelligent than the non-delinquent youths. A significant relation was found between delinquency and absence of physical defect, family neglect, abnormal family structure, and occupational instability. Youths committing a first offense after leaving school were significantly more intelligent than those committing a first offense while in school. A relation was found between post-

school first offense, occupational instability, and high measured intelligence. (26 refs.) - *S. Glinsky.*

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2651 SHUKLA, T. R. Mental subnormality and criminal behaviour. *Indian Journal of Mental Retardation,* 2(2):74-79, 1969.

A study conducted on 36 adolescent criminals from Central jail and Borstal School, Bangalore (India) does not fully confirm the contention that MR is associated with criminal or deviant behavior but rather supports the multiple causation theory of criminal behavior. To assess intellectual ability, Alexander's Battery of Performance Tests and Raven's Progressive Matrices were used. An interview schedule and a biographical inventory were utilized to obtain information on the family, religion, and developmental history of the Ss. Alexander's Battery revealed that 77% of the Ss were MR, and Raven's Matrices indicated that 72% were MR. In addition, 86% demonstrated dissatisfaction with achievements, 83% had poor socioeconomic status, 77% had a rebellious attitude towards punishment, 77% had intense emotional attachment with mothers, 64% had lack of knowledge of religion, 63% showed job dissatisfaction, 51% had lax childhood discipline, 35% manifested lack of faith in religion, and 25% were unemployed. Many factors other than MR, therefore, can be correlated with criminal or deviant behavior. (8 refs.) - *B. J. Grylack.*

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2652 CANONNE, F.; TOMKIEWICZ, S.; & DUCHE, D. J. Etude des facteurs medicaux, psychologiques et pedagogiques d'une population d'enfants algeriens d'age scolaire habitant dans un bidonville (Study of medical, psychological, and pedagogical factors in a population of Algerian children of school age living in a ghetto). *Bulletin de Groupe de Recherches d'Hygiene Mentale de l'Enfance et de l'Adolescence Inadaptees,* 23(3):587-622, 1968.

Fifty-one children of Algerian descent living in a ghetto in the suburbs of Paris between January 1 and July 1, 1966 were studied to determine whether membership in an emigre population in France plays a greater role in the development of subsequent nonadjustment than life in a ghetto. Information was obtained through evaluation of family and scholastic data, a psychological examination, and a clinical interview. Of the 31 families, 21 fathers and 28 mothers showed no apparent pathogenetic factors. Change of residence (6 families had moved from 1-4 times after arriving in France) was found to be independent of pathogenesis related to the family situation, and the hypothesis that arrival at a ghetto led to a degradation of family life had to be eliminated. The children (18 girls, 34 boys) were aged 1-15 years upon arrival in France, and 2 were born in France. Four were in poor health, 20 had mediocre health, and 27 had generally satisfactory health. Administration of the Wechsler Intelligence Scale for Children (WISC), the Goodenough Draw-a-Man Test, and Rey's Complex Figure Copying Test showed that the sample represented a statistically normally distributed population, the average IQ was 70, there was no significant difference between the performance and verbal IQs on the WISC, and a positive correlation was found between the WISC and Goodenough IQs. On the level of social integration, the prognosis was most favorable for eldest sons. The quantitative verification of the formulated hypothesis could not be completed because Ss with parents manifesting pathogenetic factors are rare, certain factors connected with language or living conditions influence the academic and social prognosis univocally, and evaluation of the intelligence test cannot include assessment of the attitudes of the participating Ss. (9-item bibliog.) - *B. J. Grylack.*

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2653 BALDWIN, WILLIE KATE. "Juvenile Delinquency." *Journal for Special Educators of the Mentally Retarded,* 6(2):122-123, 1970.

Very few delinquent children come from homes where they are shown affection, handled consistently, given responsibilities, and taught to consider the family as a unit. One of the best juvenile delinquency preventives is that of a good father image within the home--an image that sons and daughters can respect and sons can emulate. For daughters, fathers should offer a constant example of the kind of man who would make a good life long partner. Characteristics which create a good father image include recognizing the abilities and limitations of each child, being a good listener, practicing the ideals one professes, and being upright and good. (No refs.) - *C. L. Pranitch.*

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Glassboro, New Jersey 08028

2654 Childhood autism. *British Medical Journal,* 1(5688):62-63, 1970.

Autism in childhood is a symptom of psychosis (present from birth or developing at age 2 or 3 years), characterized chiefly by inability to make and sustain emotional relations, and unawareness of personal identity and body image. Psychotic children may withdraw completely and be virtually immobile, but withdrawal may be secondary to such ailments as deafness, aphasia, brain damage, or MR and be improperly diagnosed as autism. An autistic child may be intellectually retarded, but frequently displays intelligent behavior (formal IQ testing being frequently impossible). Frequency of autism is not clear nor is the etiology of childhood psychosis, although psychogenic, biochemical, and perceptual origins have been advanced. Treatment and educational facilities are extremely limited, and there is no consensus on the relative advantages of day or residential units. (2 refs.) - *B. Berman.*

2655 YAKTIN, U. S.; & McLAREN, D. S. The behavioural development of infants recovering from severe malnutrition. *Journal of Mental Deficiency Research,* 14(1):25-32, 1970.

Thirty infants with severe marasmus were divided into 2 groups with similar medical and nutritional care but dissimilar social stimulation, and their behavioral development was assessed at intervals during the 4 months of hospitalization. The group on a colorfully decorated ward with a great deal of attention from the nursing staff did better than the unstimulated group, but both groups showed steady improvement on locomotor, personal-social, hearing and speech, eye and hand, and performance parameters. Improvement was correlated with an increase in both weight and head circumference. Neither group obtained a developmental quotient equal to that of healthy, unstarved children of similar background. (22 refs.) - *E. L. Rowan.*

American University of Beirut
Beirut, Lebanon

2656 STOCKMANN, FRITZ. Wandel der Familienbelastung unter besonderer Berucksichtigung der Entwicklung behinderter Kinder (Patterns of change in family burdens as they particularly affect the development of mentally retarded children). *Praxis der Kinderpsychologie und Kinderpsychiatrie,* 16(8): 309-312, 1967.

Case studies illustrate the MR's difficulties which arise from the abnormal family situation. Factors associated with the child which negatively affect the family atmosphere are an exhausted mother, constant care of the MR child, and the high costs of special care. Interpersonal conflicts between family and environment derive from intervention by the police, fear of sexual deviation in the MR, failure of the MR in school and general social integration, tensions between family members, and family apprehension regarding the exploitation and ridicule of their child. Physical factors include loss of the mother through sickness, divorce, or the necessity to work. Adjustments should be made on the part of the family and society to protect the MR from adverse environmental effects. (8 refs.) - *S. Glinsky.*

Lindenstrasse 7
213 Rotenburg/Hannover, Germany

2657 KIDD, JOHN W. The "adultated" mentally retarded. *Education and Training of the Mentally Retarded,* 5(2):71-72, 1970.

Adultation, defined as achievement of at least partial independence or economic utility, when applied to MRs includes such terms as employed, housewife, in military service, in postschool job training, or in trade school. A 1969 survey of 463 EMR and 71 TMR graduates revealed that 86% of the EMRs and 38% of the TMRs were successfully "adultated." Most of the EMRs were employed in fulltime regular employment, earning up to $7,000/year, while all employed TMRs were in sheltered workshops. Factors relating to the high rate of successful adultation include full time placement counselors and the late retention ages of the school program. If need be, TMRs and EMRs are not given diplomas until they reach a CA of 20. Also, if an IQ score changes to the point where the student is technically no longer EMR, parents have the option of placing their child in a regular secondary program or requesting that the child continue in the EMR program. (1 ref.) - *C. L. Pranitch.*

Special School District of St. Louis County
St. Louis, Missouri

2658 SANDERS, JAY W.; & JOSEY, ANNE FORREST. Narrow-band noise audiometry for hard-to-test patients. *Journal of Speech and Hearing Research,* 13(1):74-81, 1970.

Audiograms obtained under earphones from hard-to-test patients (10 hearing-impaired and 10 MR children) with narrow bands of white noise as test stimuli demonstrated better validity and reliability for noise-band audiometry than for pure-tone assess-

ments. MRs, in particular, found it easier to attend to noise stimuli. Such stimuli are useful (like pure-tone audiometry) for monaural testing of hearing by frequency and for testing functional and peripheral hearing, and are more suitable with large groups of hard-to-test Ss. Results suggest clinical use of narrow-band noise audiometry in evaluating hard-to-test patients. (12 refs.) - *B. Berman.*

Bill Wilkerson Hearing and Speech Center
Nashville, Tennessee

2659 WOOSTER, ARTHUR D. Formation of stable and discrete concepts of personality by normal and mentally retarded boys. *Journal of Mental Subnormality*, 16(30):24-28, 1970.

Comparative assessment of the ability of normals and MRs to develop a stable self-concept showed MRs frequently lack such a concept or, if present, have difficulty in relating it to other concepts. Two matched groups of 16 boys (1 group EMRs) were examined individually, and each was presented with the same 8 photographs of boys (same age) unknown to them and asked to assess their personality and character. Ratings of MRs were less reliable, poorly formulated, and clustered (inability to differentiate between concepts). Employing fewer categories and unable to make fine distinctions and judgments linked to experience, MRs are handicapped in social situations. It would be interesting to determine whether appropriate training might improve their social adjustment. (6 refs.) - *B. Berman.*

University of Nottingham
Nottingham, England

2660 PFANNER, P.; & MARCHESCHI, M. Le sindromi autistiche negli oligofrenici (Autistic syndromes in oligophrenics). In: *Concilium Paedopsychiatricum*, New York, New York, Karger, 1968, p. 464-468.

The relation between MR and psychotic behavior was studied in 9 boys and 3 girls of whom some had sustained brain damage at birth; half had organic brain damage, and all had suffered retarded psycho-motor development. Their inability to relate to the environment had begun early. Many had insufficient perceptual functions, and all had speaking problems in various forms. Many showed marked eating anomalies. Agressiveness toward others and even auto-aggressiveness were frequent. After some improvement due to intensive treatment, the Ss could be classified into 2 groups. In the first group, a more severe form of mental illness, such as dementia praecox or strong schizophrenia, prevailed; the Ss had, early in life, exhibited severe speaking and eating anomalies, acute anxiety, perception disturbances of the hallucinatory type, and stereotype mimicry. The second group showed a lasting improvement; the early symptoms were mainly forms of emotional disharmony and of self-defense. (No refs.) - *G. Van Massenhove.*

Universita di Pisa
Calambrane (Pisa), Italy

2661 STRAUCH, JAMES D. Social contact as a variable in the expressed attitudes of normal adolescents toward EMR pupils. *Exceptional Children*, 36(7):495-500, 1970.

A comparison of the expressed attitudes of 62 normal adolescents who had social contact with EMR youths with those of 62 normal adolescents who had no social contact with EMRs in special subject classes revealed no significant differences in feelings toward the concepts MR and special class pupils. Ss were selected from 3 junior high schools with integrated special classes and 3 other junior high schools in which EMR pupils took special subjects only with their retarded peers in essentially segregated programs. Expressed attitudes were measured by the semantic differential technique. The selected concepts were Me, MRs, Regular Class Pupils (RCP), Special Class Pupils (SCP), and Normal People (NP). The instrument format included a concept placed at the top of each page of the test booklet with 20 adjective pairs listed below. The social contact effect was significant ($p<.05$) between the normal contact and noncontact groups. There seemed to be a tendency among the normal contact group to assign higher scores to each concept than did the other group. The total normal sample perceived the concepts MR and SCP as significantly different ($p<.05$) from the concepts Me, RCP, and NP. The attitudes of the 2 normal groups differed significantly ($p<.05$) toward all concepts except RCP and NP. Studies of a longitudinal nature which examine the effects of integrating normal and handicapped children should be used to determine the approaches most conducive to promoting positive attitudes toward handicapped pupils. (24 refs.) - *B. J. Grylack.*

University of Connecticut
Storrs, Connecticut 06268

2662 MENOLASCINO, FRANK J. Emotional disturbances in mentally retarded children. *American Journal of Psychiatry*, 126 (2):168-176, 1969.

Of 256 emotionally disturbed and MR children (153 boys, 103 girls; CA range 1.6 to 14.2 yrs), there were 177 cases of chronic brain syndrome with behavioral and/or psychotic reactions, 8 cases of functional psychoses, 4 cases of personality disorder, 58 cases of adjustment reaction, and 15 cases of unspecified psychiatric disturbance. Treatment was based on a long-range total approach that flexibly focused on the child's multilevel needs. Treatment approach should initially emphasize the global nature of the child's personal-social interactional problems and only secondarily specific handicaps. The diagnosis and treatment of emotional disturbance in MRs is difficult because of the wide etiological umbrella of MR, its frequent association with multiple handicaps, the rapidly changing psychosocial needs of the developing child, the complexity of family interactional patterns, and experiential factors. Psychiatric disorders appear to be relatively frequent in young MRs and differ qualitatively from those observed in non-MR children. (17 refs.) - *J. K. Wyatt.*

University of Nebraska College of Medicine
Omaha, Nebraska 68105

2663 CHESS, STELLA; & KORN, SAM. The influence of temperament on the education of mentally retarded children. *Journal of Special Education*, 4(1):13-27, 1970.

Fifty-two EMR children (IQ range 50-75; initial MA 4 to 6 yrs; initial CA 5-4 to 11-11) participated in a 6-year study on the relation between temperament and academic achievement. All Ss lived at home, 35 attended special public school classes, and 17 attended special schools for MR and emotionally disturbed children. Data were obtained from psychological testing, neurological examinations, demographic information, a parent interview, and home and school observations. Temperament categories investigated were activity level, rhythmicity, approach or withdrawal, adaptability, intensity of reaction, threshold of responsiveness, quality of mood, distractibility, attention span, and persistence. Characteristic behavior of each S was compared with that of normal children. There was a significant ($p<.01$) relation between threshold of responsiveness and academic achievement. High academic achievement tended to be related to high activity, regularity, adaptability, approaching behavior, positive mood, persistence, and non-distractibility. Intensity showed no relation to academic achievement. There were significant relations between high academic achievement and possession of 5 or more high-achievement related traits and between low achievement and possession of 4 or fewer of these traits. These findings indicate that the presence of the difficult child syndrome or other temperamental traits may be a contraindication of high academic achievement; however, the reverse is not necessarily true. (5 refs.) - *J. K. Wyatt.*

New York University Medical Center
New York, New York 10016

2664 SHEARER, WILLIAM M.; & BAUD, HENRY E. Adaptation in mentally retarded stutterers and nonstutterers. *Journal of Communication Disorders*, 3(2):118-122, 1970.

MR did not appear to affect the speech adaptation behavior of MR stutterers and nonstutterers. Eight stutterers (IQ range 58-78; mean CA 20.1 yrs) and 12 nonstutterers (IQ range 61-82; mean CA 19.6 yrs) read a 200-word passage from a primary science book 5 consecutive times. Two experienced public school speech therapists evaluated tape recordings for disfluencies. There was a significant ($p<.01$) decline in the proportions of nonfluency behavior between the first and the fifth reading. Adaptation was present in stutterers and nonstutterers. Comparison of the behavior of these Ss with normative data on elementary school stutterers and nonstutterers and college student stutterers indicated that the adaptation performance of MRs was not different from that expected from individuals with normal IQs. (15 refs.) - *J. K. Wyatt.*

Northern Illinois University
Dekalb, Illinois

2665 CIMA, ETTORE. Immigrazione ed insufficienza mentale (Immigration and mental deficiency). *Neuropsichiatria Infantile*, 98(March):255-269, 1969.

A clinico-statistical investigation of the population of Genoa (Italy) Special Schools aimed at assessing the size of the immigrant population and the possible impace of recent immigration on MR and other abnormalities of the examined children. 140 Ss, CA 6-14 yrs, with IQ's from 50/75-80, were examined clinically, and additional information obtained by means of a questionnaire directed to their families. On the assumption that migration from rural areas to a large industrial city (which normally disrupts living patterns and

causes an adaptation crisis) might have worsened or even been responsible for the mental deficiencies in the observed Ss, information was obtained on several variables. These variables included place of origin, type of dwelling, number of siblings, parental educational and cultural level, family background, as well as information on assimilation and adaptation to the Genoan life style. Results in correlating 41 of the 45 variables were regarded as statistically significant, and the investigators were able to call attention to the most important traumatizing factors of immigration and suggest appropriate pedagogical and social remedies. (19 refs.) - *G. van Massenhove.*

University of Genoa
Genoa, Italy

2666 FREEMAN, ROGER D. Psychiatric problems in adolescents with cerebral palsy. *Developmental Medicine and Child Neurology* 12(1):64-70, 1970.

The frequent emotional disorders of the adolescent with cerebral palsy may not be related directly to brain injury and are not classifiable into specific psychiatric categories. Sexual, social, marital, and vocational problems become more acute at this age and can contribute to a greater incidence of psychiatric disorders. The physician should endeavor to establish and maintain a good relation with the patient and his family, attempt to avoid dependency or regression, and realize that confidence and ability to compete may depend as much on emotional attitude as on motor abilities. Recent techniques for behavior modification which focus on removal of symptoms and on learning theories may have merit and may occasionally be aided by the judicious prescription of certain drugs. Indirect counseling to permit the utilization of more non-psychiatric personnel is another possible approach to the management of these cases. (14 refs.) - *M. S. Fish.*

St. Christopher's Hospital for Children
Philadelphia, Pennsylvania 19113

2667 DE HIRSCH, KATRINA. A review of early language development. *Developmental Medicine and Child Neurology,* 12(1):87-97, 1970.

The importance of language in developing cognition, formation of conscience, direction of behavior, and establishing the concept of self and non-self is described. Understanding of normal language development can be helpful in recognizing and aiding children with speech defects. The process of development proceeds from the nasalized cry of the neonate who is in hunger, pain, or discomfort to association of the mother's voice with feeding on to reaction to positive and negative tones at 3 months. Response to other tones appears at about 6 months, and babbling begins between 5 and 10 months. Comparison of the mother-child environment with that of institutionalized infants shows the importance of feedback between mother and infant. Imitation begins at about 10 months as does control over pitch, volume, and intonation. The first non-imitative word combinations appear between 12 and 24 months, and the usage vocabulary at 2 years is 200-300 words although the understanding vocabulary is much larger. The time sequence of normal development is quite comparable from child to child and may depend more on environmental influences than on intelligence. (43 refs.) -*M. S. Fish.*

46 East 82nd Street
New York, New York 10021

2668 GORDON, NEIL. Delayed speech and histidinemia. *Developmental Medicine and Child Neurology,* 12(1):104-106, 1970. (Annotation)

An analysis of 23 reported cases of histidinemia indicates that the speech disorder which some investigators suggest may be a direct result of the disease may, instead, be caused by the MR which frequently accompanies histidinemia. Seventeen of the 23 cases had retarded speech; however, of the 17, 6 were MR, 9 were SMR, and only 4 with normal intelligence had speech disorders. Of these 4, the sister of 1 had histidinemia but had normal speech and intelligence. Two with speech impairment had a family history of similar difficulties, suggesting a genetic origin. Speech defects of patients with histidinemia do not differ from those found generally in other cases of low intelligence. Rather than a selective effect of histidine breakdown products on the central nervous system, a secondary effect of enzyme lack or related factor may impair cerebral development; however, since 7 known patients with histidinemia have normal intelligence, a direct relationship between the metabolic disorder and brain damage may not exist. (21 refs.) -*M. S. Fish.*

Booth Hall Children's Hospital
Manchester, M9 2AA, England

2669 GIANNOTTI, ADRIANO; & AMMANITI, MASSIMO. Condotte automutilatorie in eta' evolutiva (Self-mutilating behavior in the evolutive stage). *Neuropsichiatria Infantile*, 104(October):799-823, 1969.

After defining self-mutilating behavior of the MR child and listing some of the most frequent forms it takes and some difficulties adults experience in even observing it, the authors re-examine self-aggressive behavior in normal individuals and find a great number of manifestations of self-aggressivity. They discuss self-mutilating behavior which has some significance from the pathological point of view and set forth the phenomenology and dynamics in psychotic, neurotic, and MR persons as well as in Ss suffering from organic diseases. Data from the literature are supplemented by case histories of a boy and 3 girls (CAs 3.3 to 15 yrs). Self-mutilation, in normal as well as in pathological Ss, is a function of relationship to objects. It may take place if these relationships are not yet stabilized (as in the normal primitive autoaggressivity), if they cannot be stabilized (as in the MR), if they are ruled by regressive mechanisms, or if they are partially disturbed (as in neurotics). For therapy a careful diagnosis of the self-aggressivity-inspiring structures is needed. (25 refs.) *G. van Massenhove.*

University of Rome
Rome, Italy

2670 Autistic children. *Lancet*, 1(7639): 201, 1970.

Since autistic children have severe learning difficulties and require training by experts, more special schools should be available for this purpose. This problem, which occurs in 4 to 5 per 10,000 children, is often accompanied by other conditions such as spasticity, hydrocephaly, or epilepsy and is usually characterized by slowness in learning to talk and in the copying of sounds. The symptoms of the disease can be differentiated from other abnormalities such as aphasia, deafness, and MR. Despite the heavy burden, parents tend to keep autistic children at home since they are unable to cope with the requirements of normal living. A broader understanding of the nature of the problem and recognition of the fact that high nonverbal intelligence often occurs among autistic children may encourage parents to seek the special training which these children require. (1 ref.) - *M. S. Fish.*

2671 FOREHAND, REX; & *BAUMEISTER, ALFRED A. Body rocking and activity level as a function of prior movement restraint. *American Journal of Mental Deficiency*, 74(5):608-610, 1970.

General activity and body rocking increased after periods of restraint in 6 institutionalized SMR males (CAs 19 to 31 yrs; IQ < 25). All had displayed rocking behavior prior to the experiment. Baseline data for 3 days was obtained, following 18 minutes in the waiting room without restraint, by measuring general activity (ultrasonic motion detector) and counting the number of rocking movements during four 4-minute intervals which were separated by 30 seconds without observation. Behavior following 18 minutes of restraint (strapping in a chair so as to impede hand and arm movements and rocking) was similarly measured during the following 3 days. The entire 6-day procedure was then repeated for all Ss. Baseline behavior during the 4 consecutive intervals did not differ significantly. The restraint conditions were associated with less stereotyped behavior (rocking) in the fourth interval than that in the first and second interval. More rocking behavior was observed in each of the first 3 intervals after restraint than in the corresponding 3 baseline intervals. The general activity rate of 5 of the Ss increased following restraint when compared with baseline activity. (10 refs.) - *M. S. Fish.*

*University of Alabama
University, Alabama 35486

2672 MALONEY, MICHAEL P.; & PAYNE, LAWRENCE E. Note on the stability of changes in body image due to sensory-motor training. *American Journal of Mental Deficiency*, 74(5): 708, 1970.

A follow-up study has shown that the improved body image of MR Ss given sensory-motor training remains stable over an extended period of time. The follow-up was performed on 30 of the Ss who were originally tested: 16 had undergone sensory-motor training and 14 had served as controls with no treatment. Initial results immediately after 2 months of training had shown that the experimental group made significant gains over pretest scores on 2 measures of body image: the Eye, Hand, and Ear Test and the Personal Orientation Test. Little change from pretest scores was noted for the control Ss. Readministration of these 2 tests to both groups 8 months after termination of training demonstrated that trained Ss still maintained signifi-

cantly improved performance over the pretest level with no significant difference from the posttest scores. The scores of the non-treated controls again did not differ significantly from previous scores. (1 ref.) - *M. S. Fish.*

Pacific State Hospital
Pomona, California 91766

2673 EYMAN, RICHARD K.; MOORE, BYRON C.; CAPES, LaVERNE; & ZACHOFSKY, TONI. Maladaptive behavior of institutionalized retardates with seizures. *American Journal of Mental Deficiency*, 74(5):651-659, 1970.

Retardates with seizures may have a relatively greater amount of brain dysfunction as suggested by aggressive behavior, hyperactivity, and arm-hand and speech problems. The Ss were MR patients in 3 hospitals and were classified by age, sex, IQ, and frequency of observed or reported seizures. Twenty variables representative of handicaps and problems associated with seizures were identified and rated on a 4-point scale and analyzed in terms of which were associated with patients with seizures and which were associated with patients without seizures. Twelve variables were found to have significant association in at least 1 hospital with patients with seizures. Of these, 4 were associated with patients without seizures in at least 1 other hospital and were eliminated from further consideration as were variables for which chi-square values were not significant for a particular hospital. Analysis of the remaining 8 variables (aggressive, hyperactive, arm-hand problem, speech problem, destroys clothing, upsets furniture, self-destructive, and attacks patients) indicated that aggressive behavior or attacking of patients, hyperactivity, arm-hand and speech problems were among the first 4 variables distinguishing between the seizure and non-seizure groups at the 3 hospitals. Of the patients with seizures in the 3 hospitals, those found to be receiving medication for the control of seizures were 69, 83, and 92%, respectively. (23 refs.) - *M. S. Fish.*

Pacific State Hospital
Pomona, California 91766

2674 BALTHAZAR, EARL E. Balthazar scales of adaptive behavior, section 1: The scales of functional independence (BSAB-1). Champaign, Illinois, Research Press, $7.25.

More than 400 Ss (including SMR's and PMR's, as well as less retarded, younger individuals) were studied during a 7 yr period to obtain measures of their eating-drinking, dressing-undressing, and toileting behaviors. The study aimed at establishing a means to develop and evaluate programs for the MR, as well as at developing methods to modify and investigate program design. Information obtained would be catalogued in a stock-piling center, which would correlate with program profiles, and could be retrieved when necessary. The scales are administered by means of direct observation with the exception of the Toileting scales. The BSAB-I includes a Professional Supervisor's Handbook, a Rater Technician's Handbook, the Program Answer Sheets, and a Workshop and Training Manual. (No refs.) - Author abstract modified.

## DEVELOPMENTAL ASPECTS--PSYCHODIAGNOSTICS

2675 TALKINGTON, LARRY; & *REED, KATHY. Rorschach response patterns of hearing-impaired retardates. *Perceptual and Motor Skills*, 1969(3):29, 546.

A group of 20 institutionalized MR adolescents with marked bilateral hearing loss was matched to a group with normal hearing on the basis of age, sex, IQ, and date of admission, and their responses to the Rorschach protocol were compared in 19 categories. The only significant difference was in the texture determinant category where Ss with normal hearing showed a greater need for affection of a physical contact nature. This suggests that deafness may mask a more mature developmental level while suppressing intellectual function as measured by intelligence tests. (3 refs.) *E. L. Rowan*

*University of Kansas
Lawrence, Kansas 66044

2676 AYRES, A. JEAN. Relation between Gesell development quotients and later perceptual-motor performance. *American Journal of Occupational Therapy*, 23(1):11-17, 1969.

Perceptual-motor tests administered to 92 children (mean age 70 months) who had previously been given the Gesell Developmental Scales at a mean age of 57 weeks indicate that early performance on the Gesell tasks is closely related to later perceptual-motor function. Total Gesell Developmental Quotients (D.Q.'s) were especially strongly related to praxis items. Test results indicate, too, that praxis and tactile perception are related functions in the infant (such a relationship has been previously demonstrated in the case of older children), and that the tactile-praxis component of development is related to successful performance on the Gesell scales. (20 refs.) - *J. Moody*.

University of Southern California
Los Angeles, California 90007

2677 EAVES, LINDA C.; NUTTALL, J. C.; KLONOFF, H.; & DUNN, H. G. Developmental and psychological test scores in children of low birth weight. *Pediatrics*, 45(1):9-20, 1970.

A longitudinal survey of 420 low birth-weight (LBW) children (<2,041gm) older than 3 years (150 of them older than 6 years) and 207 full birth-weight control children (>2,500) compared behavioral development at different ages in relation to birth weight and socioeconomic status. The survey was conducted at the University of British Columbia, Vancouver, B. C., Canada. Results show that the control children performed consistently better than those of LBW on infant scales up to age 18 months. Socioeconomic factors only began to show a definite effect on I.Q. of LBW children at age 2 1/2 to 4 years, whereas the effect of birth weight gradually became less distinct with age. After the first year, LBW girls scored higher than boys on the hearing/speech subscale and, to a lesser extent, on the personal/social and performance sub-scales of the Griffiths test, and also on other tests administered at different ages. While there was no significant difference in test performance between small-for-date (SFD) children and those born prematurely, there was a tendency for SFD children to score slightly higher in the first year, and for premature children to do better after age 2 1/2 years. (33 refs.) - *J. Moody*.

Health Centre for Children
Vancouver 9, British Columbia, Canada

2678 WAGNER, EDWIN E.; & MURRAY, ALICE Y. Bender-Gestalts of organic children: Accuracy of clinical judgment. *Journal of Projective Techniques and Personality Assessment*, 33(3):240-242, 1969.

Possible sources of the questioned validity of the Bender-Gestalt (BG) in diagnosing brain-damaged children are the diagnostician's expertise and the absence of objective scoring in appraising the developmentally heterogeneous design reproductions of children. The BG and the Design Reproduction Test (DRT) were administered to 32 Ss aged 6 to 16 years (mean CA 9.6 yrs) with mild to severe central nervous system dysfunction and to a control group of normal children matched for age and sex. Five diagnosticians, ranked according to professional degree, years of clinical experience, and presumed expertise, designated the organic BG in each pair of protocols for brain-damaged and normal Ss. Clinical evaluation rather than predetermined scoring systems was the basis of selection. For the DRT, discriminations were based simply on which S in each pair gave the higher error score. Both the BG and DRT were able to classify correctly the brain-damaged children at high levels of probability. Chi-square analysis showed that differences between the 6 sets of classifications were not significant; incorrect classifications ranged from 2 to 5. Although the method of pairing a brain-damaged S with a normal S is contrived and artificial, the results suggest that the BG is a valid test of organicity and can be used effectively as a screening technique by even the subdoctoral clinician. (6 refs.) - *J. Moody*.

University of Akron
Akron, Ohio 44304

2679 PARMELEE, ARTHUR H., JR.; & SCHULTE, FRANZ J. Developmental testing of preterm and small-for-date infants. *Pediatrics*, 45(1):21-28, 1970.

In order to determine the degree to which performance in later infancy depends upon neurological maturity at birth, an examiner who did not know the infants' respective neonatal conditions gave Gesell developmental tests to 25 full-term, 22 small-for-date, and 26 preterm infants at age of 40 weeks. The full-term and small-for-date infants performed at or near their chronological age level with mean developmental quotients (DQ) of 99 and 96, respectively. The pre-term infants performed at less than their age from birth with a mean DQ of 88; but when their age was corrected for weeks of prematurity, the mean DQ was 99. These findings indicate that perfor-

mance on the Gesell schedules is dependent on time from conception rather than time from birth. Pre-term infants should have their age determined from their expected date of birth for purposes of calculating a developmental quotient. (28 refs.) - *J. Moody.*

UCLA Center for the Health Services
Los Angeles, California 90024

2680 O'KELLY, E. A method for detecting slow learning juniors. *Educational Research,* 12(2):135-139, 1970.

The English Picture Vocabulary Test I was administered to 703 seven-year-olds in 10 schools in a new London borough. The Ss were from a well-to-do residential neighborhood, an adjoining, less prosperous neighborhood of mixed social class, and an area of poverty and overcrowding. The results indicated marked differences depending on socioeconomic background, a small but significant difference in favor of males regardless of socioeconomic area, a higher percentage of boys entering junior school virtually illiterate from the group scoring under 85, and a better reading ability among girls in a group of equal age. Analysis of a sub-sample of 209 children aged 6.9 to 8.0 years, who had been independently referred as possible slow learners, revealed a correlation of 0.70 in both sexes between standard scores on the English Picture Vocabulary Test I and the Stanford-Binet, Form L-M. (5 refs.) - *S. Glinsky.*

Chipstead Child Guidance Clinic
London, England

2681 FRANKENBURG, WILLIAM K. The Denver Developmental Screening Test. *Developmental Medicine and Child Neurology,* 11(2): 260-261, 1969. (Letter)

A recent review of the Denver Developmental Screening Test (DDST) by Koupernik made erroneous statements and failed to cite the DDST item which not only agrees with Sheridan's finding but is also more exact than Sheridan's in its description of language development. Most important, the reviewer misunderstood the purpose of DDST and did not recognize its unique feature as being the only developmental screening test which has been standardized on a large, heterogeneous population group. Moreover, it identifies specific abnormal delays in development by indicating the distribution of each test item, and it is administered and interpreted with sufficient ease to allow specially trained nonprofessionals to utilize it for mass screening for developmental delays. Although the reviewer questions the ability of the medical students who gathered the normative data, the reliability of the results (90%) could not have been achieved without very able examiners. (1 ref.) - *B. J. Grylack.*

University of Colorado Medical Center
Denver, Colorado 80220

2682 KOUPERNIK, CYRILLE. The Denver Developmental Screening Test. *Developmental Medicine and Child Neurology,* 11(2):261-262, 1969 (Reply to letter by Frankenburg)

The errors made in a review of the Denver Developmental Screening Test are acknowledged, but it is reaffirmed that only highly trained personnel can administer such examinations, particularly to infants. Progress in evaluations will be made through more comprehensive procedures, not from statistical refinements. (No refs.) - *B. J. Grylack.*

57, Avenue Montaigne
Paris VIIIe, France

2683 ACHENBACH, THOMAS M. Comparison of Stanford-Binet performance of nonretarded and retarded persons matched for MA and sex. *American Journal of Mental Deficiency,* 74(4):488-494, 1970.

Comparison of the proportion of nonretarded and retarded Ss passing each item on the 1960 Stanford-Binet Intelligence Test, Form L-M, has revealed few significant differences, and comparisons of MA-matched retarded black Ss and retarded and nonretarded white Ss have shown few differences in performance patterns attributable to race. Fifty-four pairs were formed from a total of 79 nonretarded and 62 retarded Ss with neither detectable brain damage nor emotional disturbance on the basis of similarity between the 2 groups in MA and sex. Only items at the low end of the test which were failed by at least 5 Ss and those at the high end which were passed by at least 5 Ss were considered to yield fully valid comparisons. Among the 36 pairs for which 1 S differed from the other in number of levels at which items were passed, nonretarded Ss had greater spreads in 19 pairs, and retarded Ss had greater spreads in 17. Twenty pairs with 1 white and 1 black retarded member were formed from a total of 62 retarded Ss to assess racial differences in performance patterns. In 5 pairs, the black Ss had greater spreads; in 7 pairs the white Ss had greater spreads. Very close matching was obtained on both variables for 20 additional pairs of the

same black retarded and white nonretarded Ss. Results indicated that scatter was almost identical for the 2 groups. Retarded Ss excelled on concrete and practical items, while nonretarded Ss performed best on more abstract items. Differences in IO and CA are probably responsible for differences in the 54 matched pairs. (33 refs.) - *B. J. Grylack.*

Yale University
New Haven, Connecticut 06510

2684 MATTHEW, CHARLES G.; CLEELAND, CHARLES S.: & HOPPER, CORNELIUS L. Neurological patterns in multiple sclerosis. *Diseases of the Nervous System,* 31(3):161-170, 1970.

Batteries of psychometric, cognitive-adaptive, and personality tests administered to 30 multiple-sclerosis (MS) patients matched with controls from neurologic categories other than MS yielded comparable IQ scores for both groups but inferior motor and find coordination performance for the MS group. Patients and controls were matched for age, sex, education, and Full-Scale Wechsler Adult Intelligence Scale (WAIS) IQ. Each individual in both groups was well within "average" psychometric intelligence. Personality evaluation on the Minnesota Multiphasic Personality Inventory (MMPI) revealed an equal incidence of "depressed" profiles but higher occurrence of "abnormal" scores for the MS group. Only 4 tests (finger-tapping rate, static tremor, kinetic tremor, and peg insertion) were particularly discriminating of MS patients. Failure to find significant intergroup differences on most measures indicated MS patients can frequently be accurately classified on a blind basis with use of these batteries. (18 refs.) - *B. Berman.*

University of Wisconsin School of Medicine
Madison, Wisconsin 53706

2685 MICHEL, L.; & MAI, N. Auswertungsobjektivitat von psychometrischen Tests am Beispiel des HAWIK (Evaluation objectivity of psychometric tests--Analysis of the Hamburg-Wechsler Intelligence Test for Children (HAWIK). *Schweizerische Zeitschrift fur Psychologie,* 28(1):28-38, 1969.

Three subtests of the Hamburg-Wechsler Intelligence Test for Children (HAWIK) were investigated for their evaluational objectivity. Diploma psychologists with at least 2 years of experience with the HAWIK evaluated 80 sets of answers to the 3 subtests of general understanding, identification of commonalities or generalities, and vocabulary. The answer sampling was a random one from normal children of both sexes, aged 7 to 10 years, having a mean value IQ of 100. Results revealed that none of the 3 tests allowed sufficient objectivity, least of all the general understanding test which exhibited 1 standard deviation (s=3) regarding uncertainty of evaluation. All 3 tests had an evaluational uncertainty factor of 1/2 standard deviation (s=15) in determining verbal IQ. The results confirm the considerable lack of evaluational reliability of these tests and point to the need for stricter evaluation guidelines or a choice of different problem types. (14 refs.) - *S. Glinsky.*

Universitat Mannheim
D-68 Mannheim, Germany

2686 KIPHARD, ERNST J. Untersuchungen uber den Bewegungs-diagnostischen Wert des Oseretzky-Tests bei der Erkennung fruhkindlicher Hirnschaden (Studies of the motor diagnostic value of the Oseretzky Test for the recognition of early childhood brain damage). *Heilpadagogische Forschung,* 2(1):44-83, 1969.

The Oseretzky motor diagnostic test as modified by Gollnitz was evaluated to determine both the quantitative and qualitative effectiveness of the test for the diagnosis of brain damage in early childhood. Of the 208 children and youths CA 4 to 16 yrs tested, 80 had brain damage, 80 had no brain damage, and 48 were unclear. Seventy percent of those with no brain damage and 27.5% of those with brain damage had an average or above average motor development. Motor retardation percentages varied inversely with 72.5% retardation in those with brain damage and 30% in the normal group. Twenty percent of those with brain damage exhibited severe motor retardation. These results indicate that severe motor retardation is a very probable sign of damage, while an intermediate motor retardation is indifferent in its indicative value, and a normal CA level of motor development does not exclude brain damage. The correlation between intelligence and motor development is substantially higher for the brain damage group than it is for the control group. Of the 6 subtest groups, problem series 6 (mimic isolation) showed a slight relation between motor performance and intelligence due to low dependence on intelligence. Series 2 problems (manual goal-function) were too dependent on intelligence, and series 5 (simultaneous coordination) was also partially dependent on intelligence, yet the latter distinguished well between those with or without brain damage. Series 4 (manual speed) distinguished only moderately sharply, even though it relied heavily on intelligence. Despite their great dependence on intelligence, series 1 equilibrium problems demonstrated a high correlation between motor performance and brain damage. Emotional stress

also influences results in this series. The greatest differential-diagnostic value was demonstrated by series 3 (dynamic energy of the legs), since the influence of intelligence is minimal. Except in series 1, the test items are not homogeneous enough to make possible a cross-section interpretation of the entire test. The most valuable differential-diagnostic indicators found were dynamics (series 3) and balance (series 1). (13 refs.) - *S. Glinsky.*

Institut fur Jugendpsychiatrie und Heilpadagogik
47 Hamm, Germany

2687 MARCHESCHI, M.; & POGGIALI, B. Rilievi psicografici con il test di Rorschach nelle psicosi infantili degli oligofrenici: studio di venti casi (Psychographic reliefs made with the Rorschach test in the childhood psychosis of mental retardates: A study of twenty cases). In: *Concilium Paedopsychiatricum,* New York, New York, Karger, 1968, p. 416-418.

Twenty children (CA 6 to 11 yrs) showed mild MR with psychotic behavioral disturbances including autistic and ritualistic behavior, stereotype gestures and movements, speaking and eating disturbances, hallucinations (most olfactory and visual), raving imaginations and acute anxiety. Rorschach testing showed 2 psychographic reliefs: the first was characterized by extreme poverty of quantitative and qualitative responses; the second was characterized by initially stereotyped response but often followed by much more detailed response. The first group showed demented and autistic traits; the second exhibited psychosis of the imaginative type and could eventually be cured through improved contact with reality. The value of the Rorschach test for prognosis and as a means of determining psychic structure to facilitate choice of proper treatment is highlighted. (No refs.) *G. Van Massenhove.*

Universita di Pisa
Calambrane (Pisa), Italy

2688 BENDER, LAURETTA. Use of the Visual Motor Gestalt Test in the diagnosis of learning disabilities. *Journal of Special Education,* 4(1):29-39, 1970.

The aim of the Visual Motor Gestalt Test is to obtain a record of a perceptual motor experience. Among the principles that determine the maturation of visual motor perception are vortical movement, directional movement, control of movement, organization of visual field, delineation of boundaries, verticalization, and recognition of crossed lines, angle formations, and diagonal or slanting relations. The test evaluates normal maturation and maturational disturbances in the visual-motor area. Applications of the test based on "error reproduction" or discrete items ignore the global nature of the gestalt function, the inseparableness of perceptual and motor capacities, and the inherent nature of maturation. Koppitz' objective scoring system is used as a measure of intelligence and to diagnose brain damage, MR, and emotional disturbance. The various processes involved in visual-motor maturation evidence some primitiveness when there are learning disabilities, and those processes that mature latest are most affected. Reading disabilities, dyslexias, and learning disabilities appear to be due to developmental lags. (10 refs.) - *J. K. Wyatt.*

No address

2689 JOHNSON, RONALD C. Prediction of independent functioning and of problem behavior from measures of IQ and SQ. *American Journal of Mental Deficiency,* 74(5):591-593, 1970.

The ability level of the MR, as measured by the intelligence quotient (IQ) or social quotient (SQ), is predictive of a variety of adaptive behaviors, and the IQ is approximately the same as the SQ in predictive value. Ss were 23,211 individuals in 19 institutions for the MR. A census of each S contained the latest IQ or SQ, the type of test, ratings of capacity for self-help, and frequency of antisocial behavior. The IQ tests were the Stanford-Binet or a Wechsler (7,619 Ss) or other (5,919 Ss). SQ tests (6,599 Ss) were nearly all the Vineland Social Maturity Scale. Analysis of the data indicated that IQ or SQ scores allow successful prediction, at a level far greater than chance, of certain behaviors related to self-help, help of others, independent function, and learning capability. Scores were less predictive of problem behavior and adequacy in social interactions. Combined SQ and IQ scores have no more predictive value than either one alone. (3 refs.) - *M. S. Fish.*

University of Colorado
Boulder, Colorado 80302

## TREATMENT AND TRAINING ASPECTS--EDUCATIONAL

2690 PERKINS, EARLE. A 4-part program for the handicapped. *Challenge*, 5(3):3, 1970.

All pupils at the Kenyon Special Education Center (Providence, Rhode Island) are given a sense of belonging through participation in the 4-segment physical education program regardless of their physical or mental ability. The physical education segment for children with no physical limitations follows the guidelines for the regular curriculum used in the city's public schools. The section for those who cannot take part in the more vigorous physical education activities offers quiet games, lead-up games, rhythm activities and low organized activities. For pupils with even greater limitations, the sedentary activities section emphasizes games which do not involve gross motor activity, such as checkers, nok-hockey, or pool. All students participate in swimming activities (instructional, recreational, and therapeutic) according to their needs and abilities. (No refs.) *J. Moody.*

Kenyon Special Education Center
Providence, Rhode Island

2691 CHAR, SATYAVATY V. India's model school. *Challenge*, 5(3):1,4-5, 1970.

Pupils at New Delhi's model school for MR children have improved markedly as a result of the school's physical education and recreation programs. Daily drills, exercises, gymnastics, running, and jumping improved the children's health and increased their social skills and ability to concentrate in classroom activities. Their physical appearance, gait, and speech also improved. Thirty students who are physically fit, independent in daily living, and socially competent participated in the AAHPER-Kennedy Foundation Special Fitness Award Program. They show visible progress in that they achieved greater independence, play more with siblings and friends at home, and are more cheerful and more interested in their studies. (No refs.) - *J. Moody.*

College of Nursing
New Delhi, India

2692 MARX, ORRIN. Pine School's preschool program. *Challenge*, 5(3):6-7, 1970.

The preschool-kindergarten physical education program for EMRs at the University of Iowa Hospital School aims to help the children develop proper work habits, establish individual and group discipline, increase experiences, follow directions, care for equipment, pay attention, develop personal and group safety practice, and learn to play in groups. Activities in which the children participate include mimetics, games of low organization that involve chasing or following, relay races, fundamental skills (jumping, climbing, and throwing), gymnastics, social play with balls and other devices such as tricyles, and physical fitness exercises. Classroom teachers report that the daily physical education activities contribute greatly toward improving classroom organization and attentiveness. (No refs.) - *J. Moody.*

University of Iowa
Iowa City, Iowa 52240

2693 BLACKLAWS, PETER. The slow learner in the comprehensive school: Inclusion versus the special group. *Forum for the Discussion of New Trends in Education*, 12(1):24, 1969.

The slow learner's educational needs are twofold: emotional security and an integrated language-thought teaching program. A decision on the relative advantages of inclusion in classes of mixed ability or the special group depends on which alternative or combination

thereof will best meet the slow learner's individual needs with reference to the teaching talent available. Preferences of contemporary schools for the special group are based on an assumption that the remedial teacher is more likely to have the necessary combination of attitudes and skills with which to best serve the slow learner. (No refs.) - *J. Moody.*

Teachers' Centre
Walthamstow, E. 17, England

2694 FINE, MARVIN, J. Considerations in educating children with cerebral dysfunction. *Journal of Learning Disabilities,* 3(3):132-142, 1969.

A realistic appraisal of the inadequacies of the present education of children with cerebral dysfunctions points to the need for a change in attitude and approach in this field. Present methods do not proceed from clear understanding or clear definitions, utilize unvalidated procedures, and make extravagant promises. An "experimental attitude" should be adopted which underscores the tentative nature of present knowledge, the need for systematic exploration of the child's behavior, and thereby, leads to the adoption of new approaches. Greater understanding must be gained of the child's view of himself and of the remedial experience. The teacher needs to be aware of the complexities inherent in such education and of the advantage of not having his own value system in conflict with program objectives. Finally, the learning environment requires structuring to match the child's inner psychological state. (16 refs.) - *S. Glinsky.*

University of Kansas
Lawrence, Kansas 66044

2695 TREXLER, LYLE K. The trampoline: A training device for children with perceptual-motor problems. *Academic Therapy,* 5(2):145-147, 1970.

The trampoline training technique assists children with perceptual-motor difficulties to develop better awareness of themselves; it can benefit children from preschool through post-elementary ages. The trampoline teaches dynamic balance and muscular coordination adjusted not only to one's own movements but also to the spring of the trampoline. Key elements in the mastery of trampoline skills are initial removal of apprehension, step-by-step increase in difficulty of movements and variations, and assurance of a feeling of control over the trampoline at all times. Trampoline skills develop rhythm, coordination, body image, and concepts of spatial relationships. (2 refs.) *S. Glinsky.*

Pace School,
McKeesport, Pennsylvania 15130

2696 The education of mentally handicapped children in England and Wales. *Teaching and Training,* 7(4):99-101, 1969.

The National Association of Teachers of the Mentally Handicapped reacted favorably to the government's decision to transfer responsibility for the education of MR children from the Health to the Education Service. The Association offers all assistance and recommends the retention of identity and independence of the Junior Training Centers and schools in hospitals and special care units, a reduction in teacher-child ratio, diploma and salary recognition of personnel in the above groups, upgrading of academic qualifications, training for all untrained personnel, and the establishment of a parent advisory service. (No refs.) *S. Glinsky.*

2697 HIGGINS, CONWELL; & RUSCH, REUBEN. Teaching machines for the handicapped child. *New York State Education,* 56(7):27-29, 1969.

An Audio Visual Manipulative (AVM) System is used in Albany Public Schools (New York) to teach MRs arithmetic concepts, including set theory. The system centers around an AVM desk, which displays pictorial materials on a response surface upon which a student can write or manipulate objects. Instructions are given by tape recorder, and after the student responds, the correct answer appears pictorially and is reinforced by audio questioning. Over 20 different programs have been developed. The major advantage lies in giving individualized instruction and freeing the teacher to work with other children. (No refs.) - *S. Glinsky.*

Albany Public Schools,
Albany, New York

2698 ADAMSON, GARY W.; HAHN, GERRY E. Survey of services for exceptional children in Kansas. *Kansas Studies in Education,* 19(3):29-33, 1969.

To determine the number of cooperative programs in effect in Kansas during the 1967-68 school year and the number and percent of exceptional children served by these programs, a questionnaire was sent to 242 unified school districts; 79% of

the questionnaires were returned. The results showed that 85 districts had special education programs and 79 have co-op programs, with the smaller districts tending to organize more cooperative programs. The percentage of children receiving special services increases with school district size, but only 19% (399) of TMRs receive services from public schools. Those receiving special education include 49% (4,146) of the EMR, 5% (400) of those with learning disabilities, 1% (97) of those with educational disabilities, 5% (101) of those with neurological and physical handicaps, 4% (90) of the deaf, 6% (54) of the blind and 10% (812) of the gifted. (2 refs.) - *S. Glinsky.*

No address

2699 MARTIN, EDWIN, W. A new outlook for education of handicapped children. *American Education,* 6(3):7-10, 1970.

Early education of handicapped children has its own validity and foreshadows major contributions to the education of all MRs. Early education focuses on the preventive aspects of special education, where early intervention either prevents or reduces the severity of handicapping conditions and forestalls secondary emotional handicaps. It realigns and brings together the roles of educators and clinicians. Parents and family members are brought into early instruction, and educators are involved in an expanded education environment. To avoid duplication and expense, all concerned agencies will cooperate in a joint endeavor, leading to new administrative procedures for pluralistic treatment. Early education spurs a revitalization of the entire educational system, has opened up new bodies of knowledge, and requires urgent development of its programs. (No refs.) - *S. Glinsky.*

No address

2700 NICHOLLS, A. C. Aspects of special education: Remedial education--1968 and on. *Child Education,* 46(10):26-30, 1969.

The freedom of the English educational system has given rise to such a variety of "remedial educational" organizations that the effectiveness of all remedial education is open to serious doubt. Earlier definitions of MR education presented a consistent picture, but the present proliferation of theories and personal ideas requires a complete rethinking of objectives, definitions, and programs. A useful approach would be to identify 3 basic levels of failure: children with moderate difficulties requiring basically only good teaching; children with emotional difficulties requiring a "teacher-therapist" or an educational psychologist; children with marked difficulties calling for the greatest degree of help from many specialists. Importance should be attached not to method itself but to dealing with each difficulty as it arises. Remedial teachers should be experienced at several levels. (14 refs.) *S. Glinsky.*

No address

2701 CAZDEN, COURTNEY B. Approaches to language training for the educable retarded child. *Special Education in Canada,* 43(3):25-26, 1969.

Results of a language-training experiment with 2- and 3-year-olds in the Negro community of Boston indicate that variety in the language of adults should be used in situations with retarded children. The extension treatment of words provided the children with varied models of complete English sentences, while the expansion treatment was limited to repetition of the children's words by the adult. Teachers' expectations affect the amount the child learns, and there is a danger that work with nonverbal children may depress the adult's language behavior. In a mixed group of advantaged and disadvantaged children, lingual contributions of the advanced children led teachers to believe that all the children were benefitting, whereas the disadvantaged children were showing no marked improvement. Comparison of homogeneous groups of slow learners with mixed groups of superior, average, and slow learners also illustrated the tendency among teachers to neglect slow learners and use the progress of adequately functioning children as the measure for the entire group. (No refs.) - *B. J. Grylack.*

No address

2702 TEAGUE, FAY M. A developmental approach to the preschool education of the handicapped. *Special Education in Canada,* 43(3):24-25, 1969.

Lack of funds appears to be the only obstacle to preschool programs for handicapped children, and even this situation is being remedied. In metropolitan Toronto, junior kindergarten classes for 4-year-olds are being established, and special programs already exist for 3- and 4-year-old deaf and aphasic children and will probably be implemented for MR children of even younger age. Although available evidence does not seem to indicate that Head Start programs achieve any lasting gains,

it is hoped that longer programs may prove more successful. Exhaustive individual screening and diagnosis of preschoolers will reveal learning disabilities and handicaps which should be dealt with in a structured setting. MR children can learn much more through an aural program than through reading and writing. Teacher-pupil interaction is more vital to language development than pupil-pupil interaction. (No refs.) - *B. J. Grylack.*

No address

2703 WHITE, GERALDINE. The calendar. *Journal for Special Education of the Mentally Retarded,* 6(2):83-89, 1970.

A calendar format can be used in teaching MRs. The format includes a pictorial representation of the season, a written description of an event taking place during the month, followed by questions. The lesson for the month of February has a picture of a girl with a valentine, shows the calendar of the month, and provides statements about holidays in the month. Students are required to fill in missing words in a sentence, pluralize words, answer full sentence questions with single word responses, repeat the spelling of certain words, and write a short composition on a given subject. Other months are presented in a similar manner to induce learning. (No refs.) - *B. J. Grylack.*

No address

2704 LIPPMAN, LEOPOLD. England's comprehensive schools: Analogy for special education? *Exceptional Children,* 36(4):279-281, 1969.

Since 1967, there has been a continuing controversy in England over the appropriate jurisdiction for education of MRs. Under present law, EMR children are the responsibility of the schools, but TMR children are under the jurisdiction of the health authorities. Many parents and educators believe the children would learn more and grow to higher levels of capability if they all were under the auspices of the Department of Education. On the other hand, many feel that special education does not belong in the schools at all: England has a strong institutional program for the retarded, and the status of the Medical Officer of Health in each county is such that responsibility for MRs is seen as basically a medical concern. Many middle class parents resist placement of their youngsters in EMR classes partly because they often do not believe their child is as handicapped as others believe; and, more importantly, because they are reluctant for their children to be with those of lower social levels. The controversy is illuminated by the concurrent disputes over "comprehensive schools" for both normal and superior youngsters and over proposals for the heretofore exclusive boarding schools to admit pupils sent there at public expense. If the Parliamentary and judicial decisions favoring comprehensive education prevail, however, there is hope that the exceptional children, too, will gain acceptance. (No refs.) - *J. C. Moody.*

No address

2705 HOE, BETTY. Educating the retarded in USSR. *Instructor,* 79(2):99-101, 1969.

Visitors to Russian schools for TMRs and EMRs without multiple handicaps were impressed by the self-discipline and docility of the apparently happy children. Teachers and staff were characteristically kind and unpressuring, yet completely in control of their classes. The only evident adverse stimulus was nonreinforcement of objectionable behavior. Frequent gentle physical contact (such as placing a hand on the shoulder) with pupils was common. Shortened hours, plentiful staffing, and higher pay results in retardates' having the best teachers. Vocational training begins early for MRs, and local factories must provide jobs for them. (1-item bibliog.) - *J. C. Moody.*

Washoe Association for Retarded Children, Washoe County, Nevada

2706 KOKASKA, CHARLES J.; LAZAR, ALFRED L.; & SCHMIDT, ALFRED. Vocational preparation at the elementary level. *Teaching Exceptional Children,* 2(2):63-66, 1970.

Vocational training at the elementary levels can be instrumental in raising the quality of secondary level vocational training. Vocational instructional units should consider the performance which the lesson attempts to produce, the conditions under which the behavior is expected to occur, and the accepted level of student performance. Two general objectives are the development of the concept that all jobs are important and have value to the individual (dignity of work) and the realization that others are dependent on the worker's performance (positive self-concept). Instructional activities which lead toward measurable objectives include: recording student attitudes toward various occupations and replaying them upon completion of the work unit, constructing division of labor charts, developing a simple time-card system for class members, keeping personal information charts, re-



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cording individual achievement, and acquainting students with job related concepts (punctuality and appropriate dress). (5-item bibliog.) - *C. L. Pranitch.*

California State College
Long Beach, California 90804

2707 LAZAR, ALFRED L.; & KOKASKA, CHARLES J. Curriculum guide evaluation: TMR and EMR programs. *Journal for Special Educators of the Mentally Retarded,* 6(2):99-101, 1970.

A uniform approach in the evaluation of published curriculum guides is based on a model series of questions grouped into broad categories of general information, philosophy and objectives, curriculum content, instructional methods, assessment and evaluation. Within each category questions relate to such specifics as long- and short-term objectives, logical sequences of experiences, prescriptive teaching, occupational readiness, record keeping and grading procedures, measures for teacher evaluation, and the role of ancillary personnel. Teachers using the guide should also consider specific aspects of curriculum construction relative to the unique qualities and geographic location of their school. The above technique should be useful in planning, revising, or comparing curriculum construction. (1 ref.) - *C. L. Pranitch.*

California State College
Long Beach, California 90804

2708 SEANDEL, ANTOINETTE. Speech and language development activities for occupational training center communication skills classes. Part 2: Speech activities. *Journal for Special Educators of the Mentally Retarded,* 6(2):90-91, 1970.

The speech activities for the communication skills classes include developing acceptable language patterns, language to meet social and vocational situations, and language for enjoyment. Activities for developing acceptable speech patterns include story telling, assigning TV shows for viewing, oral reporting, and having students teach familiar concepts to other classmates. Activities for developing language to meet social and vocational situations involve: discussing slang words; tape recording and replaying for loudness, pitch, and rate; role playing; answering the telephone; and making introductions. Practicing social introductions, field trips to local points of interest, and practice conversations are some activities which will help promote language for enjoyment. (No refs.) - *C. L. Pranitch.*

No address

2709 LITTLE, DONALD M. Planning for the child who is slow. *Special Education in Canada,* 44(1):23-26, 1969.

Meeting later occupational needs of EMRs requires an educational program which is as carefully planned as those programs for children who will have business or professional careers. Much of a teacher's success is a result of knowing the children as individuals and their families as people. Other factors contributing to effective teaching are constant evaluation of social, emotional, and academic growth and the appropriateness of curriculum content. Retardation does not change the humanness of a child. Experimentation, innovation, and observation are needed in curriculum planning. Teachers should teach one thing at a time, consider each child as a whole child, recognize individual interests, simplify communication, keep learning periods reasonable in length, and use concrete and situational experiences. (No refs.) - *C. L. Pranitch.*

No address

2710 RYAN, SUSANNE F. Diagnosis and remediation of visual-form discrimination skills. *Teaching Exceptional Children,* 2(2): 86-92, 1970.

An informal teacher-made diagnostic procedure to evaluate a child's visual discrimination is presented in addition to suggested remediation activities. The test, which may be administered in only a few minutes, includes letters, words, shapes, and pictures designed to be used with children having MAs of 3-5 years. The subtests measure discrimination of geometric figures, size, color, similar digits and letters, and differences between words. The test should be administered individually and repeated at least every 4 to 6 weeks. Since the scores will indicate specific remedial needs, an individualized program for each child can be designed. (1 ref.) - *C. L. Pranitch.*

Pennsylvania State University
University Park, Pennslyvania 16802

2711 BOWLEY, AGATHA. A Cheyne follow-up study. *Special Education,* 58(3):13-16, 1969.

A follow-up study on 100 cerebral palsy (CP) children (IQ 20-50) who had received treatment and training at the Cheyne Centre for Spastic Children was conducted to assess their general progress after leaving the center. Despite treatment and good stimulation at the center, the Ss were making very limited progress. Speech therapy delayed until after 2 years of

age may mean failure to acquire satisfactory speech. Early treatment is needed to make best use of the CPs abilities and to relieve parents of full time care. The follow-up revealed that day training centers and special care units meet educational needs better than hospital units. Sheltered workshops and residential centers are needed for long term care. A high proportion of parents were realistic about their children and accepted their care willingly. Of the 100 CPs (CA 4-20 yrs), only 22 were in residential care. Of these, the majority were visited regularly by parents and returned home for holidays. (No refs.) - *C. L. Pranitch.*

Cheyne Centre for Spastic Children
London, England

2712 HUTCHINGS, FRANCES. From mumming to Mount Olympus. *Special Education,* 58(3):10-12, 1969.

A teacher of English and mathematics describes her presentation of the curriculum with maladjusted EMR boys in a vocational training school. All the boys were deficient to some degree in expression, mental maturity, and home background, a major cause of their language backwardness. An emotional approach to subject matter aroused pupils' interests in term projects, choral speaking, and caroling. Term projects (involving written work, reading, and extended vocabulary) included the Olympic games, slavery and emancipation, Negro spirituals, and the discovery of America. The boys, so absorbed in the projects, drew maps and kept individual charts, scrapbooks, and folders. Both individual and group contributions were emphasized. (No refs.) - *C. L. Pranitch.*

Pitt House School
Torquay, Devon, England

2713 FOX, JOSHUA. Breaking communication barriers. *Special Education,* 58(3): 23-26, 1969.

Aids available to help individuals with cerebral palsy (CP) communicate ideas and feelings include indicators, typewriter aids, expanded keyboard typewriters, and Patient Operated Selector Mechanisms (Possum) typewriters. Indicators, the most inexpensive and easiest to use, include letters, words, and picture boards. The CP may use any device to point to the item or idea he wishes to express. Typewriters can be modified to include guards or shields, operating devices, and arm supports. Three expanded keyboard typewriters are available; all have a control box with enlarged typewriter keys on a board larger than the normal typewriter. A key is pressed causing a corresponding key on the typewriter to print the desired letter. The 2 switches of the Possum may be operated by finger, arm, foot, head, or hip. As each switch is pressed according to code, a light moves across a grid and stops at the desired letter. Aids under construction include a Possum control speaking device and a machine which enables the CP to type by pressing only 1 key. (5-item bibliog.; 6 refs.) - *C. L. Pranitch.*

No address

2714 HEAVEY, RONALD. Porridge--Or a pot of paint. *Special Education,* 58(3):27. 1969.

Art is an aspect of child development. A child's artistic expression will develop rapidly in a good classroom situation. Very young MRs should have the opportunity to experiment with various art media. Teachers should keep charcoal, crayons, tempera, paper, and miscellaneous material readily available to permit impulsive self-expression by the MR. Pupils should be allowed to express themselves artistically as soon as they want or they will lose their creativity. (No refs.) - *C. L. Pranitch.*

No address

2715 MANN, LESTER. Perceptual training: Misdirections and redirections. *American Journal of Orthopsychiatry,* 40(1): 30-38, 1970.

Perceptual-motor training, a fad in current remedial education, is based upon unjustifiable theoretical projections and a misreading of the perceptual-motor difficulties manifested by handicapped children. The school psychologist, recent educators often with only a superficial grasp of physiological psychology, the physician, and the emergence of special education as an independent discipline have all contributed to the present detrimental involvement with perceptual training techniques. Many perceptual training practices are self-limiting, and any benefits are often narrow and derived at the expense of time and pupils. These factors support a shift from the uncertainties of current perceptual training to the adjustment of classroom and educational materials for a maximization of teacher and training opportunities. Anything valuable in perceptual training can be accomplished through traditional adapted educational and therapeutic

approaches oriented toward functional and relevant behavioral goals. (22 refs.) *B. J. Grylack.*

Research and Information Services for Education
King of Prussia, Pennsylvania 19406

2716 MALONEY, MICHAEL P.; BALL, THOMAS S.; & EDGAR, CLARA L. Analysis of the generalizability of sensory-motor training. *American Journal of Mental Deficiency*, 74(4): 458-469, 1970.

Investigation of the generalizability of Kephart's sensory-motor training system has indicated that sensory-motor training does generalize to body image development but not to finger localization and that significant generalization does result from attention-control procedures. Fifty-nine moderately retarded and SMR males were assigned to groups stratified according to ability level and diagnostic category. The walking board, balance board, and angels-in-the-snow exercises were used by the sensory-motor training group (S-M), while the attention-comparison group (A-C) engaged in a series of sedentary activities. The traditional no-treatment control group (N-T) had no systematic interaction with any member of the research team. At the end of major training, the S-M and A-C groups underwent specific finger training and were then tested again with the Finger Localization Test. The Eye, Hand, and Ear Test and Personal Orientation Test were used to measure body image, while the Purdue Perceptual-Motor Survey was used as an index of specific motor progress resulting from training of motor skills in S-M activities; each of these tests showed significant interaction with the S-M group having a significantly greater increase. On the basis of total pretest data, the Finger Localization and Personal Orientation Tests correlated significantly ($r=.47$; $p<.001$), a finding which suggests that finger localization is a circumscribed aspect of a general body image. (44 refs.) - *B. J. Grylack.*

Pacific State Hospital
Pomona, California 91766

2717 'Do-say' technique helping retarded learn. *Illinois Education*, 58(6):253, 1970.

A "do-say" program was designed to aid MRs in self-help skills, recreation, social behavior, and language development. Although the program was developed for Ss with Down's syndrome most of the techniques can be used also with other TMR children. The do-say technique bridges the gap between motor and speech systems by depending upon the child's ability to imitate actions and by attempting to establish a correspondence between the language and the action. Ten children with Down's syndrome trained according to this curriculum showed some progress in language skills at the end of the 12-month experimental program. The curriculum aims to improve instruction in the home to compensate for understaffed and overcrowded institutions. (No refs.) - *B. J. Grylack.*

2718 ARMSTRONG, JENNY R.; & SENZIG, KAREN. Instructional materials used and preferred by Wisconsin teachers of the mentally retarded. *Education and Training of the Mentally Retarded*, 5(2):73-86, 1970.

A questionnaire was sent to 300 Wisconsin teachers of the MR to determine what instructional materials were used and preferred by them. Instructional strong points of preferred textbook series included those which provided for remedial and individual differences, allowed repetition, were motivating, were skills or content oriented, and were moderately priced. Among major weak points cited were poor explanations or transitions, monotony, lack of practical situations and experiences, lack of review and practice exercises, too expensive, and no allowance for individual differences. The teachers preferred texts with high interest and appeal which will motivate the child to learn, texts which allow for individual differences, and those which provide enrichment activities. They preferred audiovisual equipment which requires some degree of student participation rather than TV or radio. In general, teachers were not acquainted with the newer aids and innovations in curriculum and media. (7 refs.) - *C. L. Pranitch.*

Wisconsin Special Education Instructional Materials Center
Madison, Wisconsin

2719 LISTER, CAROLINE M. The development of a concept of volume conservation in ESN children. *British Journal of Educational Psychology*, 40(1):55-64, 1970.

A teaching method embracing 3 conservation-of-volume experiences, reasons, and situations successfully instructed 30 non-conserver children (CAs 9-15 yrs; IQs 46-75) in recognizing, generalizing, and citing reasons for conservation. Instruction included counting for identity, manipulating, rever-

sibility, measuring displacement, and verbalizing 3 reasons of identity, reversibility and compensation. Retesting (after 5 months) demonstrated retention of the generalized concept. The 30 Ss (selected from 104 educationally subnormal school children pretested by Piaget-type substance, weight, and volume situations) gave non-conservation judgments in all responses where criterion was failure to detect equality in any attribute following change in shape. Post-testing included new situations and inequality judgments to ascertain development of a general concept rather than a specific learned response. At post-test, 29 children gave appropriate reasons for their conservation judgments - most frequent reason was qualitative or quantitative identity of material. (9 refs.) - *B. Berman.*

University of Keele
Keele, England

2720 BLUM, EVELYN R. CEC ERIC's the now way to know: A research and demonstration approach to special education in the 70's: An interview with Dr. Leonard S. Blackman. *Education and Training of the Mentally Retarded,* 5(4):186-193, 1970.

Teacher's College Research and Demonstration Center--first of a group funded by the U.S. Office of Education--conducts research in providing the most effective classroom experience for mentally and physically handicapped children, develops curricula and methodology, and trains research specialists in special education. Affiliated with about 23 community agencies, it stresses psychological factors in early reading processes, problems of reversal tendencies in young retardates (these impede other reading aspects), and classroom ecology (physical and psychological environment). Children are identified as primarily graphemic or phonemic by their reading errors, and appropriate remedies are tailored to the individual child. Work with emotionally disturbed and socially maladjusted children has devised a new taxonomy of instructional treatments embracing 4 dimensions: communications input, communications output, types of materials, and size and nature of groups. Once identified, a child can be matched with suitable materials (auditory, verbal, small group, or other), which avoids the pitfalls of exceptionality categories in traditional grouping. (No ref.) - *B. Berman.*

Columbia University
New York, New York

2721 SANZONE, JEAN F. Programed lesson series in auditory discrimination. *Education and Training of the Mentally Retarded,* 5(4):177-185, 1970.

A kit designed to provide instruction in auditory discrimination to culturally disadvantaged, EMR children has proved widely acceptable as a motivating agent. The 30-lesson kit presents stressed sounds orally with visual and kinesthetic reinforcement and uses no reading material or written symbols. Each 30-minute lesson emphasizes specific areas of auditory-discrimination skills, with emphasis on detecting fine discriminations in words, word parts, and phonemes. Varied activities, covering a wide difficulty span, provide challenge. Teachers, who make improvisations to suit specific needs, have found the morning best for instruction. Researchers stress that the culturally disadvantaged child, although he often has inadequate receptive skills, does not necessarily have organic deficiencies. There is major need for a program spanning the entire field of phonics and paced to the older EMR child. (79 refs.) *B. Berman.*

Gulf Beaches Elementary School
St. Petersburg Beach, Florida

2722 McCULLOCH, R. W. An integration matrix for slow learners as a minority group. *Australian Journal of Mental Retardation,* 1(3):74-76, 1970.

Integration of the "slow-learner" child (actually a member of a minority group) into the community can be facilitated by a 4 x 3 matrix (applicable to both child and school) that considers a definition of community at 4 levels: community at large, community in contact, agents of the public, and the client public. The first level of integration--simple recognition--depends on diagnostic and screening arrangements; the second requires *ad hoc* schools or classes with specialist teachers; the third involves being wanted and appreciated. In addition, there must be administrative integration of educational services. (4 refs.) - *B. Berman.*

Monash University
Clayton, Victoria, Australia, 3168

2723 MARTIN, MARY. Some recent trends in the education of mentally handicapped children. *Australian Journal of Mental Retardation,* 1(3):70-73, 1970.

Recent advances in educating intellectually handicapped children are team-oriented and

interdisciplinary. One important trend--compensatory education--seeks to remedy the environmental deficits of the culturally deprived and give special help for specific learning disabilities. Deprivation of appropriate experiences may result in motor, perceptual, linguistic, and conceptual disabilities. Compensatory education requires an early start, proper diagnosis, parental instruction, equipped schools, skilled teachers, and continuous assessment. Another trend--community integration--needs to break down the isolation of the handicapped child by placement in comprehensive schools providing special education, continuous assessment and reprogramming, and integration with community services and voluntary workers. Of great importance is new stress on emotional adjustment of the intellectually handicapped. (2 refs.) *B. Berman.*

Balmain Teachers' College
New South Wales, Australia

2724 VALETT, ROBERT E. The Learning Resource Center for Exceptional Children. *Exceptional Children,* 36(7):527-530, 1970.

The importance of individualized instruction, proper programing, and continued inservice training in the field of special education, as well as the need to provide for pupils with multiple handicaps or with requirements for special education therapy, are receiving worthy priority in the Learning Resource Center for Exceptional Children. Established to stimulate the development of prescriptive teaching approaches by supplementing the regular special education program, the Center devotes particular emphasis to multiply handicapped pupils whose learning disabilities were inadequately handled in the existing programs. Parent education is one of the most effective programs offered by the Center; this and other services have broad implications for the future success of the special education field. (6 refs.) - *B. J. Grylack.*

Fresno State College
Fresno, California

2725 NEWMAN, KAREN S. Administrative tasks in special education. *Exceptional Children,* 36(7):521-524, 1970.

The functional tasks of special education administrators in 100 randomly selected public school districts with pupil populations of 13,000 to 30,000 were surveyed with an instrument utilizing Urwick's theory on the administrative activities of planning, organizing, staffing, directing, coordinating, reporting, and budgeting. The administrators indicated that no research with exceptional children was being conducted and that no periodic publication was available. No significant differences were found between tasks actually performed and tasks that the administrators felt they should perform for the remaining tasks in the instrument. Planning, organizing, directing, and coordinating were the highest ranked functions. The major findings showed emphasis to be in the area of MR. There appears to be a direct relationship between training in the education of exceptional children and performance of the directing function, as well as a definite tie between experience in special education teaching, on the one hand, and planning and staffing functions, on the other. The tasks which are needed in the administration of special education services include: the provision of adequate programs to individual districts; coordination of the many services offered within the school and community; assistance in hiring the necessary teachers; dissemination of current research findings to directly involved personnel; and continuous evaluation of curricular approaches, pupil responses, and special education personnel. (6 refs.) - *B. J. Grylack.*

Arizona State University
Tempe, Arizona 85281

2726 MORGAN, G. A. V. An educationist looks at mental handicap. *Teaching and Training,* 8(1):3-6, 1971.

Education for MRs should emphasize more than the acquisition of basic skills and should consider total physical, emotional, and social development. Early identification and assessment are imperative. Since there is an overlap between children placed in training centers and children placed in special schools for slow learners, teachers of these groups can learn from one another. In the future, there should be a flexible interchange between training centers and special schools. Educational planning should include new techniques, such as curricular analysis, and be based on a theory of instruction which emphasizes learning assessment. (No refs.) - *J. K. Wyatt.*

No address

2727 NEEDLE, B. L.; & GREENTREE, J. Another Fareham experiment. *Teaching and Training,* 8(1):21-25, 1970.

Money concepts were taught to teenage women from ESN schools by devising a series of very

simple instructional steps and using a very repetitious presentation. Initially, the Ss did not know how to compute change and did not understand the value of change or the concept of comparative value. The concept of money was presented in a series of concrete facts which included the use of money language, the concept of same, counting, and making change. (No refs.) - *J. K. Wyatt.*

No address

2728 DREW, MARY. Malaysia tackles problem of the mentally slow. *Teaching and Training,* 8(1):25-27, 1970.

A school for 35 MRs (CA 5-18 yrs) in Kuala Lumpur (Malaysia) teaches language, speech, academic subjects, music, home science, social training, and physical education. The school has been conducted by the Selangor Association for Retarded Children since March, 1964, and is partially supported by the government. MR is a new field in Malaysia. It is viewed as a social stigma, and when children arrive at the school, they have been either overprotected or neglected and have anti-social habits. There are 5 other schools for the MR in Malaysia. (No refs.) - *J. K. Wyatt.*

Selangor Association for Retarded Children
Kuala Lumpur, Malaysia

2729 CHASEY, WILLIAM C. The effects of clinical physical education on the motor fitness of educable mentally retarded boys. *American Corrective Therapy Journal,* 24(3):74-75, 1970.

Participation in an 8-week clinical physical education program for one hour/week resulted in significant ($p<.01$) improvement in the motor fitness of 18 EMR boys (CA range 9.2 to 14 yrs). Activities included a variety of gymnasium activities, conditioning and coordinating exercises, games, and modified sports. Activity selection was based on individual needs. Clinic philosophy was self-rehabilitation through the friendly, cheerful guidance of the clinician. The Indiana Motor Fitness Test was administered before and after the clinic. Items which demonstrated the greatest improvement were squat thrusts and straddle chins. Participation in this clinic may also have been related to sudden improvement in school work, social adjustment, fine motor skills, speech, and functional intelligence. (7 refs.) - *J. K. Wyatt.*

University of Texas
Austin, Texas 78712

2730 HODGES, ALTON. Therapeutic gymnastics for the mentally retarded. *American Corrective Therapy Journal,* 24(3):66-68, 1970.

Traditional teaching methods and gymnastic equipment can be adapted to therapeutic programs for perceptual-motor training for MRs. In a program for 250 MR children, evaluations were used to identify marked weaknesses in gross motor abilities, balance, body-image concepts, and spatial relations. Tumbling and mat activities at the most basic levels were used with SMRs who exhibited gross neuromotor disabilities. Obstacle scaling and vaulting, parallel bars, and trampoline activities were used to teach and develop directional concepts, coordination, balance, the solutions to complex mobility problems, body image and function, perceptual-motor tasks, gross motor coordination, and serial memory. These techniques attempted to develop abilities in the areas of thinking and functional motor abilities. The program was designed to meet individual needs in the neuromotor area and sought to develop generalized and generalizable motor abilities and to integrate situations that require thinking and planning. (6 refs.) *J. K. Wyatt.*

University of Texas
Austin, Texas 78712

2731 NUGENT, T. J. Precepts and concepts on research and demonstration needs in physical education and recreation for the physically handicapped. In: American Association for Health, Physical Education and Recreation; & the National Recreation and Park Association. *Physical Education and Recreation for Handicapped Children--Proceedings of a Study Conference on Research and Demonstration Needs.* Washington, D.C., 1969, p. 20-23.

Research, demonstration, and program development for the individual with a physical handicap must be predicated upon the view that he is a normal person with a disability, not a disabled person. Physical education and recreation are most justified in the life of those with physical handicaps, for they lead to a realization of self-identification and selfconfidence and an opportunity to lead a normal emotional life and grow through self-evaluation and response to success and failure. The great failure in so much current work is the assumption of abnormalcy in persons with physical handicaps. Criteria should include greater involvement of individuals with disabilities in on-going programs, more involvement of professional people, more interdisciplinary studies, greater exposure for

demonstration programs, consideration of individuals in functional terms and a corresponding functional orientation in programs, utilization of normal conditions in studies to increase their meaningfulness, and a serious review of current programs and research. (No refs.) - *S. Glinsky.*

University of Illinois
Champaign, Illinois 61820

2732 HAUBE, DAVE. Toledo project stresses carry-over skills. *ICRH Newsletter,* 4(7):3, 1970. (Letter).

A physical education program for the orthopedically handicapped students from the preprimer level to senior high school emphasizes adaptation in games, activities, and carry-over skills. The activities center around low organizational games on the primary level, relays and simple team sports on the intermediate level, and a full range of team sports and carry-over activities on the upper level. The carry-over sports include beach-ball volleyball, basketball with adjustable baskets, wheelchair football, baseball, corom hockey, slot car racing, archery, track events, and certain table-top games. In all activities, the principle of adaptation has been the key to success. (No refs.) - *S. Glinsky.*

Charles Feilbach School
Toledo, Ohio

2733 STEIN, JULIAN U. *Challenge,* 5(4):2, 1970. (Editorial)

The key to successful integration of MRs with the nonretarded in non-academic areas (such as physical education, recreation, art and music) is safe and successful competition. When MRs are unable to compete safely and successfully, they should be separated from the nonretarded. Effective programing must recognize MRs who can participate in existing activities, those with the potential for eventual participation in such activities, and those who will not be able to participate successfully. This varied spectrum of abilities dictates integrated programs for MRs and nonretarded, special activities for MRs during regular competitions, and special competitions for MRs only. Effective programs can only succeed if they correspond to an actual scale of MR potential and needs. (No refs.) *S. Glinsky.*

1201 16th Street, N.W.
Washington, D.C. 20036

2734 BOWERS, LOUIS. The status of physical education for the mentally retarded. In: American Association for Health, Physical Education and Recreation; & National Recreation and Park Association. *Physical Education and Recreation for Handicapped Children--Proceedings of a Study Conference on Research and Demonstration Needs.* Washington, D.C., 1969, p. 1-6.

The concept of physical education for MRs suffered from neglect initially but has burgeoned in recent years and requires careful evaluation. Historically, cognitive functioning was considered all important in MR work until recognition of the crucial role of motor function led to a flourishing of studies. Fully half of these studies have come in the 1960's and are half descriptive and half experimental. Due to an inability to gauge accurately the effect of physical activity on motor performance in MRs, much more study and experimentation are needed. Formal national recognition of the need for physical education for MRs came only in the mid-1960's through the activities of the Project on Recreation and Fitness for the Mentally Retarded. These activities included a nation-wide survey of the status of physical education for MRs in public schools and initiation of training projects for leadership in the field. Federally funded programs now promise substantial progress. The abundance of programs nation-wide is laudable, but often they are narrowly oriented, lack standardized measures of motor performance progress, or rest upon inadequate research. The present task is to channel enthusiasm in program development, re-evaluate existing programs and supporting data, and determine the most effective course for research and program evolvement. (9 refs.) - *S. Glinsky.*

University of South Florida
Tampa, Florida 33620

2735 KAMM, ALFRED. 1970 flashback. *Challenge,* 5(3):8, 1970.

A brief history of physical education programs for MRs is given to increase understanding of these programs and the possibilities for other programs. Initial recognition of the therapeutic values of physical activities in 1892 led to programs of recreation, physical education, crafts, music, and library services in state hospitals and institutions for MRs by 1931. Concurrent programs were privately developed, and by 1938, the necessity of physical activity for mental health was nationally recognized. Parent-sponsored MR classes began in 1933 and became widespread by 1950 through

a national association. Only in 1920 did public school systems begin to provide MR classes, which are now rapidly being legislatively mandated. Increased understanding has led to the prominence of physical activities in MR education and more effective school and home programs. Yet the need continues for innovative approaches, new methods, special equipment, creative use of materials, and activity adaptations. (1 ref.) - *S. Glinsky.*

Illinois Department of Special Education
Springfield, Illinois

2736 SHERBOURNE, VERONICA. Movement and the severely subnormal child. *Challenge,* 5(5):6-7, 1970.

The relatively unexplored use of movement in the education of SMRs was evaluated on the basis of work with an autistic boy (CA 9 yrs; MA 2 yrs) who exhibited obsessional movements, avoidance of human contact, and withdrawal. As a result of 6 one-hour sessions on a 1 to 1 basis, substantial progress was made with the patient in the areas of increased trust and feeling for others, initiative toward external challenges, strong response to music, and a diminution of obsessional movements. The program, conducted as part of the curriculum for students training to work with MRs, also taught the students the value of the use of movement in MR education and the 1 to 1 teaching relationship. (No refs.) - *S. Glinsky.*

26 Hanbury Road
Bristol 8, England

2737 WILLOWER, DONALD J. Special education: Organization and administration. *Exceptional Children,* 36(8):591-594, 1970.

Observable changes and desirable directions in special education administration are discussed. Special attention is given to merits and disadvantages of a social system approach. Various structures connected with special education (placement, EMR classes as a subculture, and EMR teachers within the larger teacher group) should be examined in terms of their contributions to organizational stability. Increased research resources should be devoted to the sociology of special education organization, rather than principles of management. (19 refs.) - *C. L. Pranitch.*

Pennsylvania State University
University Park, Pennsylvania

2738 WEINTHALER, JUDITH; & ROTBERG, JAY M. The systematic selection of instructional materials based on an inventory of learning abilities and skills. *Exceptional Children,* 36(8):615-619, 1970.

Availability of catalogs, learning profiles of a limited number of children, or subject matter alone are often the basis for selecting instructional materials. Selection based on such factors rarely relates to the child's needs and abilities. A systematic framework of learning abilities enables proper selection of materials to ensure the full application of diagnostic teaching. To select materials, a learner's profile and a materials' profile should be developed along specific variables: level of the task, modality of reception, modality of expression, psycholinguistic processes, number of modalities, and content of the task. (No refs.) - *C. L. Pranitch.*

Brookline Public Schools
Brookline, Massachusetts

2739 BLOCH, JUDITH. A preschool workshop for emotionally disturbed children. *Children,* 17(1):10-14, 1970.

A preschool workshop has demonstrated that the socialization process can be substantially advanced in seriously disturbed, functionally retarded children through a psychotherapeutically oriented program that provides the child with individualized help at a very young age (CA 2 1/2-7 yrs) simultaneously with help to his parents in managing him at home. Operation of the school is based on the theory that the best time for therapeutic intervention is as close to the onset of the dysfunction as possible. Each child has an individualized self-care program within a loosely structured classroom situation designed to improve communication, attention, concentration, speech, and language. At the end of their first year, all 22 enrollees were able to tolerate a classroom experience for the entire morning, most could participate in group singing and games, and toilet training had been partially or completely established. (10 refs.) - *C. L. Pranitch.*

Preschoolers' Workshop
Garden City, New York

2740 MACGILLIVRAY, I. The assessment of fetal development by ultrasonics. *Developmental Medicine and Child Neurology,* 12(1): 106-107, 1970. (Annotation)

Ultrasonic measurement of fetal development has been shown to be an accurate predictor of the duration of gestation. While radiologic assessment is accurate near term, the ultrasonic method has been shown to predict, as early as 20 to 30 weeks after conception, the

duration to within ± 9 days in 95% of the cases. Ultrasonics can visualize the gestational sac, the fetal head, and the placenta at 5, 14, and 16 weeks, respectively. A rapid linear enlargement of the fetal biparietal diameter occurs between 20 and 30 weeks, and this measurement can indicate the length of gestation more accurately than could an estimate of size and weight, were such an estimate possible. After the method has become more widely used, it should provide a particularly valuable tool for the management of pregnancies complicated by growth retardation, fetal overgrowth, hydrocephaly, or microcephaly. (2 refs.) - *M. S. Fish.*

University of Aberdeen
Foresterhill, Aberdeen, AB9 2ZD, Scotland

2741 CROSBY, K. G., and BLATT, B. Attention and mental retardation. *Journal of Education,* 150(3):67-81, 1968.

A review of concepts of attention and distraction, the relationship between attention and intelligence, and theories and studies of attention in mental retardation, indicates that the frequent identification of attentional impairment and distractibility as general traits of the retarded has not yet been justified by research. Management of attention is part of the teacher's job, and when more adequate attending behavior is needed for efficient learning, its achievement is to be sought, like any other behavior, through the deliberate application of teaching methods. (52 refs.) - Author abstract.

Joint Commission on Accreditation of Hospitals/Accreditation Council for Facilities for the Mentally Retarded
Chicago, Illinois

## TREATMENT AND TRAINING ASPECTS--PSYCHO-SOCIAL

2742 MARTIN, N. An autistic child at play centre. *Intellectually Handicapped Child,* 9(1):22,24, 1969.

A 4-year-old autistic girl spent one year at a play centre for normal children. The child gradually performed various play activities (such as jig-saw puzzles, finger painting, ladder climbing, and jumping) but constantly exhibited a preference for playing with water. She advanced slowly from a completely withdrawn state to accepting pushes from other children and even striking back. Her attention span was never more than 10 minutes. No progress in verbal communication occurred and constant, constructive supervision was necessary. Interaction with normal children in the play situation benefited the child. More time at the center with constant personal attention could have advanced the child even more. (No refs.) - *S. Glinsky.*

Rotorua Play Centres Association
Rotorua, New Zealand

2743 ROGOW, SALLY. The non-verbal blind child: Two paths to speech. *New Outlook for the Blind,* 63(1):1-7, 1969.

A direct educational approach coupled with a warm foster home atmosphere initiated verbal communication in a 9-year-old congenitally blind girl. She developed language use over a 6-month period through daily 1-hour braille sessions and special classes. Her background included a history of initial verbalization followed by introverted, non-verbal, MR behavior, until separation of her parents placed her in a foster home and special school. Initial refusal to communicate or interact with others gave way progressively to directed answers, stereotyped responses lacking content, affect or involvement, memorized songs and rhymes, and eventually spontaneous, whole sentence communication exhibiting feeling, concern with others and thought. The special school experience and the foster home atmosphere of affection, encouragement of successes and gradual insistence upon personal responsibility

resulted in substantial progress in verbal communication and social growth. The case illustrates the dangers of understimulation and dependency in a blind child. (6 refs.) *S. Glinsky.*

Simon Fraser Special Education Center
Burnaby, British Columbia, Canada.

2744 REINHART, JOHN B.: & DRASH, ALLAN L. Psychosocial dwarfism: Environmentally induced recovery. *Psychosomatic Medicine,* 31(2):165-171, 1969.

Physical and developmental recovery from psychosocial dwarfism in a S was accomplished out of the home through psychologically-oriented special school therapy. The S was a 13-year-old female fraternal twin with severe growth retardation from her second through seventh years. Entrance into a special school remarkably accelerated physical, psychological, and social growth, enabling the S to equal her twin brother in all respects by age 13. Psychosocial factors discovered in retrospect possibly accounted for the poor growth response; these included the child's congenital activity type of diminished adaptability and lower threshold for stimuli, relatively early maternal deprivation, weak attachment to her mother, polydipsia, and feelings of hopelessness and helplessness. Early recognition of such factors can minimize prolonged dysfunction. (14 refs.) - *S. Glinsky.*

Children's Hospital of Pittsburgh
Pittsburgh, Pennsylvania 15213

2745 MARSHALL, NANCY R.; & HEGRENES, JACK R. Programmed communication therapy for autistic mentally retarded children. *Journal of Speech and Hearing Disorders,* 35(1):70-83, 1970.

Four children, designated autistic and MR at ages 2-4 years and without verbal or nonverbal skills necessary for speech therapy, acquired communication, looking, and listening skills, and ability to discriminate between positive and negative responses after participating in operant-programmed communication therapy. A team procedure (necessary because of the manifold responses made by child and clinician, and the need for immediate feedback to modify techniques) aimed to improve or develop looking and imitative behaviors (achieved by patient imitating the clinician's hand or arm gestures), vocal and verbal responses (reshaped towards the clinician's training stimulus by gradual and differential reinforcement), and concept formation (by object identification and description, intensification of object relationships, developing a sense of "having," making the child do something with the object, and learning to make demands on the environment). In all instances, the physical therapeutic environment was programmed and imbued with the values of the clinic culture. (8 refs.) - *B. Berman.*

University of Oregon Medical School
Portland, Oregon 97201

2746 COUNTS, CLARICE; & COUNTS, ALFRED. Search for proper stimulus is essential. *ICRH Newsletter,* 3(22):1, 5-6, 1969.

MR students rejecting speech as a means of communication were exposed to several real-life situations to furnish them with genuine experiences about which they could talk. The students at the day-care center ranged in age from 3 1/2 to 40 years. As a means of overcoming their speech rejection, stimuli were provided by visiting a zoo, picking fruit, playing with small animals in the country, climbing mountains, exploring caverns, picnicking, hiking, and visiting museums, a university, and an Amish market. Other speech stimulation activities included working with 3-dimensional miniature household scenes and objects and miniature games and toys. The out-of-classroom and in-classroom experiences require a total involvement in emotional and sensory stimuli, which call forth speech. (No refs.) - *S. Glinsky.*

No address.

2747 LOYND, JENNI; & BARCLAY, A. A case study in developing ambulation in a profoundly retarded child. *Behaviour Research and Therapy,* 8(2):207, 1970.

A profoundly retarded, microcephalic 8-year-old girl was encouraged to walk by behavioral conditioning. Her standing and aided stepping were reinforced with candy. Table-holding was then extinguished by non-reinforcement and grasping and walking responses were transferred from broomstick to stick to tape to string to independent walking. Concomitant to developing ambulation, there was improvement in other motor skills and in family acceptance. (No refs.) - *E. L. Rowan.*

St. Louis University
St. Louis, Missouri

## TREATMENT AND TRAINING ASPECTS--OCCUPATIONAL

2748 NIXON, RUSSELL A. The impact of automation and technological change on the employability of the mentally retarded. *Rehabilitation and Health*, 7(8):3-9, 1969.

Various studies and projections of national labor needs show no basis for predictions that technological advances will diminish the need for maximum utilization of the nation's human resources in the immediate future. Nor can it be shown that shifts from blue collar to white collar employment are largely eliminating unskilled occupations and the need for workers whose intellectual and educational capacities are low or limited. Discrimination and institutional barriers to employment of the MR suggest that the working-age MRs need advocacy support to get results in today's biased labor market. Also needed are more realistic vocational parameters for the major classes of MRs. (25 refs.) - *J. Moody.*

Columbia University
New York, New York

2749 CARUTH MEMORIAL REHABILITATION CENTER. Work adjustment training for mentally retarded young people in a community setting. Final report of the Work Adjustment Training Program. Diana, P. B. Dallas, Texas, May 1969, 24 p.

To demonstrate that the gap between school and adult employment can be bridged by appropriate training, a 3-year project (now being expanded and continued) in Dallas County, Texas, provided comprehensive evaluation and vocational training for 110 retardates (mostly TMRs) from 16 to 39 years old. Many had multiple handicaps including cerebral palsy and severe emotional problems. Follow-up study showed that nearly 50% of the former trainees are regularly employed full-time, half of them in competitive jobs. The time spent in the training program (from 1 to 30 months; average, 9.1 months) had little relationship to the final outcome except that those who returned to school stayed a somewhat shorter time. Although jobs could not be found for the 20 trainees with an IQ below 40, Wechsler Adult Intelligence Scale scores do not reliably predict employability. Parents' attitudes are an important factor in the employability of any trainee, but data conflict on the specific elements that seem to encourage the child to work. (No refs.) - *J. Moody.*

2750 NIXON, RUSSELL A. Rehabilitation -- Human reinforcement in a troubled world. *Journal of Rehabilitation*, 35(2):14-17, 1969.

The 1968 Amendments to the Vocational Rehabilitation Act and the Report of the National Citizens Advisory Committee on Vocational Rehabilitation are clear evidence that new mandates have appeared in this area and that new approaches are required in order to respond to these mandates. The goals are to attend to needy individuals not already in rehabilitation programs, to reach and aid the hard-core cases (from identification through follow-up), to extend services beyond the traditional coverage of the physically and mentally disabled to others with handicaps which limit their ability to hold jobs, and to increase the utilization of handicapped workers of all categories. Federal authorizations for these programs have increased over 10-fold from $116 million 5 years ago to $1.25 billion which the Congress has authorized to be spent annually, starting in 1971. Translation of these increases into realization of the goals will require that vocational rehabilitation change, improve, and add to its own services as well as link these efforts to other human service programs and agencies at all levels of government. (No ref.) - *M. S. Fish.*

Center for Study of the Unemployed
New York University
New York, New York 10003

2751 The retarded grow by planting. *Medical World News*, 10(42):38D, 1969.

The training of MRs in gardening skills which will enable them to hold outside jobs is the goal of a Maryland training center. The MRs (mean CA 17 yrs), with a wide range of in-

telligence and emotional problems, spend a 1-week observation period at the center, followed by a 16-week adjustment period during which time they learn basic gardening skills and work the regular daylight hours of commercial gardeners. They then work outside jobs in small groups under supervision after which they may take individual outside jobs but have follow-up help and advice from their instructors. The training period for each MR may require from 6 months to over a year. The 6-year-old center trains 20 boys at a time and obtains about 45% of its budget from the sale of its products. It will shortly begin for girls a comparable program in flower cutting and wrapping and in planter preparation. (No ref.) - *M. S. Fish.*

2752 KUNCE, JOSEPH T. Is work therapy really therapeutic? *Rehabilitation Literature,* 31(10):297-299, 320, 1970.

The results of several studies qualify the effectiveness of work therapy and suggest a more judicious employment of it. Work therapy can foster institutional dependence, and vocational success may be more dependent on basic patient psychological strength rather than on work behaviors. Often an equal effect is achieved by patients working in a paid job in the community, which underlines the value of specific incentives. The value placed upon work in American society should cause counselors to be concerned about the vocationally related behaviors of patients. Work therapy with a goal of competitive employment may be most valuable to schizophrenic patients "in remission," and is of use to MR and physically disabled patients. As currently operated, work therapy hinders persons with less chronic disabilities, such as neurotic patients, who might benefit more from job placement and follow-through counseling. (25 refs.) *S. Glinsky.*

Regional Rehabilitation Research Institute,
University of Missouri,
Columbia, Missouri 65201

2753 FENDELL, NORMAN. Team work experience for the mentally retarded. *Rehabilitation Literature,* 31(11):330-332, 1970.

Segments of the retarded school population needing vocational training not being provided within present work-study programs can be vocationally trained through team work-experience in the community. Such team work in groups of 5 plus instructor is being done on a half-day basis. It centers around various productive activities, such as car washing, lawn care, snow removal, food service operations, and agricultural work. The team approach assures individual, thorough instruction, encourages competition among members in the same ability range, provides social experiences in a community setting, equips some members with skills applicable in competitive employment, and promotes proficiency. Its primary goal is to help the MR adjust to independent living, thus holding great promise for the future. (5 refs.) - *S. Glinsky.*

Manchester Public School System,
Manchester, Connecticut 06040

2754 MOONEY, BEL. Where work is real but sheltered. *Times Educational Supplement,* January 9(2851): 18, 55, 1970.

In a sheltered workshop for EMR school-leavers in Bristol (England), the Ss receive pay for their factory-contracted work, which includes heat-seal packaging of clothespins, assembling a kit for the conversion of cash registers to the decimal system, and labeling containers. A factory pressure atmosphere is maintained, calling for adherence to a work schedule, responsibility, concentration, and standards of workmanship. Employment is later secured for virtually all trainees. (No refs.) *S. Glinsky.*

No address

2755 POSNER, BERNARD. Why employers say "yes" in Kansas City. *Special Report: Fresh Views on Employment of the Mentally Handicapped,* August 1970, 3 p.

A special 3-year project of training and placing MRs in Kansas City has achieved notable success: approximately 164 employers agreed to train MRs; only 1 of 450 MRs left the program during that time; and a follow-up study several months later revealed 95% still employed. Employers' interest in the program was stimulated through short interviews, use of terms other than MR, and an appeal for involvement in the training of young people. Further, employers were totally involved in the training program itself. Their interest was sustained through detailed feedback on the trainees and their progress, failures, and changes in behavior. The results were employers' realization of the MRs' potential, greater employer involvement in the program, and nearly complete success for the MRs. (No refs.) - *S. Glinsky.*

The President's Committee on Employment of the Handicapped,
Washington, D. C. 20210

2756 ST. JOHN, WESLEY V. Occupational training for the trainable mentally retarded. *Special Education in Canada,* 43(3):23-24, 1969.

TMR children will not usually become self-supporting, but vocational training programs leading to sheltered workshop situations can be very profitable for them. TMR schools have operated in Canada for 20 years, and in 1969 they were placed directly under local boards of education. In California, pupils who have reached the age of 16 years and cannot benefit from regular work programs are eligible to attend these schools until age 21 for special training, which consists of 3 hours in a special class and the remainder of the day in a sheltered workshop situation. In the Napa (California) TMR school, the program for girls emphasizes home arts, especially food preparation. Occupational training for boys is composed mainly of light manufacture of marketable wood products. Under the supervision provided in TMR schools, pupils with very limited intelligence (IQ approximately 30) have made great progress through systematic instruction within a curriculum which promotes learning in small, sequential steps. (No refs.) - *B. J. Grylack.*

Napa County Schools
Napa, California 94558

2757 RIGDON, DOROTHY. Mississippi's state-run workshops. *Rehabilitation Record,* 10(2):20-24, 1969.

Throughout Mississippi, disabled individuals are receiving aid in a vast network of rehabilitation workshops called Allied Enterprises of Mississippi, which are operated by the Mississippi Vocational Rehabilitation Division (VRD). The Allied Enterprises branches are functioning in 19 different locations at present, and it is hoped that 75 of the 82 counties will soon have their own workshop. Workshops vary in size, types of trainees served, and community resources, but in all cases the community provides the building, individuals from all spheres of private and government life participate in planning the workshop, every shop is run by the state VRD, and all shops operate with the same bookkeeping system. An important feature of each workshop program is the close working relation between industrial contractors and the trainees who perform the work. This relation is maintained by locating the workshops as close as possible to the principal contract sources. Despite daily difficulties, all workshops are making steady progress. Employer resistance to placing Negroes or Indians or ex-mental patients or ex-convicts in community occupations is very minimal, and a high rate of employment exists in Mississippi. (No refs.) - *B. J. Grylack.*

No address

2758 KRANES, JUDITH E. Programming for adolescents with learning disabilities. *Special Education in Canada,* 43(3):14-15, 1969.

A 4-year program at New York University designed to train adolescent girls (aged 18 1/2-24) with central nervous dysfunction or severe learning problems with emotional concomitants to become nursery school assistants has shown that emotional disturbance in students with learning disabilities may be related to their inability to establish a normal relationship with their peers. In contact with young children, the trainees, with a minimum Grade 5 reading level (IQ 65-95), are functioning as well as university graduates function in relation to high school students. The first part of the program consisted of a fieldwork laboratory in a nursery school, during which the trainees gained judgement and understanding through practical experience. The child study phase at the University included role playing, the development of skills, training films, and class discussion. In the third and final phase, students were able to question staff members about their relationships with children as trainees, about themselves, and about any other topic they wished to discuss. The significance of cognitive growth was stressed, and adjustive psychological therapy was used throughout. The location of the program on the University campus was felt to be valuable to students and their parents in making them feel that the girls were achieving a certain degree of academic and social success. (No refs.) - *B. J. Grylack.*

New York University
New York, New York

2759 PEMBROKE, JAMES D. Retarded keep pace with jet meal service. *Manpower,* 1(3): 22-23, 1969.

For several years Sky Chef, Inc., an airline catering firm, has been successfully hiring and training MRs as food assemblers, cream machine handlers, utility workers, third bakers, and cafeteria busboys. An important ingredient in Sky Chef's program is close liaison with parents or relatives of MR employees. Parents are encouraged to visit the company to see the MR working and are asked to watch for unusual actions that could indicate the employee is laboring under some kind

of confusion or misunderstanding. Although MR employees take longer to train because each job is broken into small components that are taught one at a time, they are consistently competent, reliable workers once they master a job. MRs have less absenteeism, lower turnover, and are no greater safety risk than other employees. (No refs.) - *J. C. Moody.*

U.S. Department of Labor
Washington, D.C. 20210

2760 GANDHI, J. S.; & CHEEMA, M. A 'follow-up' of the mentally retarded. *Indian Journal of Mental Retardation,* 2(2):68-73, 1969.

In a follow-up study of 13 MR boys who had left the Government Institute of Special Education in Chandigarh (India), information was obtained on the attitudes of MRs toward their occupations and on the attitudes of parents toward their children's occupations. The CA range was 13-23 years, MA varied from 5-12 years, and IQ ranged from 40-75. Separate and individual interviews with the boys and their parents revealed that the majority of discharged Ss, even those aged 13 years, had found jobs and were earning money, although none of them had undertaken very enterprising work. Adjustment of the boys to their jobs and good attitudes toward their work were apparent, and 11 parents expressed partial or full satisfaction with the type of occupation their sons had selected. The parents had no serious complaints about the behavior of their retarded sons at home. Five of the boys indicated a desire to marry. The obtained data indicate a need for more extensive study through which it may be possible to establish correlations between CA and earnings, CA and adjustment, MA and output, and MA and adjustment. (2 refs.) - *B. J. Grylack.*

Government Institute of Special Education
Chandigarh, India

2761 SMITH, GERALD. Employment services to the mentally retarded. *Rehabilitation and Health,* 8(1):4-6, 1970.

The American public is becoming increasingly aware of the work potential of MRs, and employers are discovering that MRs are often a stable and dependable source of manpower. The number of MRs placed in jobs by the state employment system should be much higher. A study was conducted to determine how much information concerning the MR state employment counselors actually possessed. The survey revealed that while the counselors had favorable attitudes toward MRs, they did not consider it their responsibility to find them employment. The majority felt the responsibility belonged to the vocational rehabilitation agencies. Counselors having the most knowledge of MR had the most positive attitude toward the MR and were the most successful in placing them. Although the entire burden of MR employment should not be placed upon the state system, if knowledge of MR has a great bearing on successful MR placement, then increasing counselors' knowledge in this area is necessary. (No refs.) - *C. L. Pranitch.*

University of Oregon Medical School
Portland, Oregon 97201

2762 GIBSON, DAVID; & FIELDS, DONALD L. Habilitation forecast in mental retardation: The configural search strategy. *American Journal of Mental Deficiency,* 74(4):558-562, 1970.

The apparent failure of expert judges to employ many cues they identified as important, and the disparity between the cues identified by experts and those evidently used by the receiver group represent 2 inconsistencies regarding the identification of relevant cues for forecasting MR habilitation. Thirty-two client variables contributing to release-decision processes within the framework of the configural search strategy were identified, rank ordered, and compared with habilitation outcomes for 118 MR youths. Treatment consisted of up to 3 years of traditional residential vocational training. Post-release success was identified empirically by progressively reducing the clients' community supervision as warranted. Client failure was defined as consistent in-residence or probation failure across a variety of institutional and community work placements over a period of up to 3 years. Pre-treatment prediction for habilitation outcome was 73% accurate. Twenty-two percent of the clients who were predicted to fail actually succeeded, while 30% of clients for whom success was predicted subsequently failed to achieve independent community status following a long-term program of vocational preparation and follow-up. Although configural prediction showed a better than chance selection, false-negative and false-positive rates were unsatisfactory. (12 refs.) - *B. J. Grylack.*

University of Calgary
Calgary, Alberta, Canada

2763 VALSESCHINI, SILVIO; & UGOLOTTI, ADELE. Analisi bifattoriale per la valutazione e l'orientamento lavorativo in un gruppo di lievi insufficienti mentali (Bifactorial

analysis for evaluation and vocational training of a group of slightly mentally retarded subjects). *Neuropsichiatria Infantile*, 100-101(May-June):481-495, 1969.

A group of vocationally trained MRs were observed to have a higher proficiency while working in a group than they did while working individually. A bifactorial analysis showed that a common factor strengthens the individual while he is in the group. This factor consists, in general, of a disposition toward executing tasks proposed. Grouping is thus important in helping MRs compensate for their own insufficiencies. (7-item bibliog.) *G. Van Massenhove.*

No address

2764 FARRALL, K. McD. Problems of work placement for the mentally deficient. *Australian Journal of Mental Retardation*, 1(1):27-29, 1970.

District officers of the Commonwealth Employment Service in Victoria (Australia) are currently assessing the occupational qualifications of MRs, placing them successfully in suitable jobs, and thereby greatly widening their clients' social and work horizons. The regional and district office staff remain in close contact to ensure that the specialist employment officer has all the necessary information relevant for occupational placement. The officers also have established a close association with employers in all industries and must frequently inform them that the handicapped could be employed in a particular situation with only minor modifications in machinery or working arrangements. If the handicapped individual is efficient, reliable, and capable, he can probably be matched with little difficulty to a firm seeking workers with these qualifications. To achieve this level of presentation, the MR should be vocationally oriented at school and supported at home by parents with realistic attitudes towards his impairment. Professional evaluation of all MR students 12 months prior to their final school year would make their last year of educational training a much more effective preparation for future fulfillment. (No refs.) - *B. J. Grylack.*

Department of Labour and National Service
Melbourne, Victoria, Australia 3000

2765 MANN, LESTER; & NAYOWITH, MARTIN. Their hands are made for helping: Recreation aide and associate program at Buttonwood Farms. *Challenge*, 5(4):8-9, 1970.

Moderately and severely retarded adolescents and adults are being trained to work in recreation and rehabilitation programs for MRs. This recreation aide and associate program intensively trains MRs for 8 weeks during the summer in tasks commensurate with their abilities, from simple grounds maintenance to programing and guiding training activities. The MRs develop self-respect and self-confidence, and their families gain the satisfaction of seeing the MR perform usefully in society. Many jobs await these MR trainees in rest homes, mental institutions and similar facilities. Such settings provide perhaps the best environment for job-trained MRs by relieving the MR of complex management decisions. The program engenders self-sufficiency in the MR and helps alleviate the labor shortage in service professions. (No refs.) *S. Glinsky.*

Buttonwood Farms
Philadelphia, Pennsylvania

2766 NAYOWITH, MARTIN H. A proposal for training educable mentally retarded adolescents and adults for roles as physical education recreation aides and associates. *American Corrective Therapy Journal*, 24(4): 115-117, 1970.

The Buttonwood Recreation Aide and Associate program takes cognizance of the critical need for individuals to fill jobs which require physical ability but limited intellectual capacity. Jobs which can be properly programed, sequenced, and supervised can be taught to EMR adolescents and adults. This group was taught to assist in the daily activities at a camp for handicapped children. Activities ranged from grounds and kitchen work to help with eating and toilet training to exercise training. Trained individuals might find a semi-independent position in a rest home or institution and make a useful contribution to society. (3 refs.) - *E. L. Rowan.*

3360 Byberry Road
Philadelphia, Pennsylvania 19154

2767 BITTER, JAMES A.; & BOLANOVICH, D. J. WARF: A scale for measuring job-readiness behaviors. *American Journal of Mental Deficiency*, 74(5):616-621, 1970.

The development of a rating scale which can be predictive of job adjustment of the trained MR is shown to be feasible. The experimental procedure involved utilization of the Work Adjustment Rating Form (WARF) to predict the employment success of 23 male and 17 female MR Ss between the ages of 16 and 21 years. Three counselors and 1 foreman trained the Ss who received WARF ratings at the third and sixteenth week of the training program. Ratings included 8 subscales: evaluation of supervision required, realism

of job goals, teamwork, acceptance of rules and authority, work tolerance, perseverance in work, extent to which client seeks assistance, and importance attached to job training. Each subscale had 5 items representing different levels of performance from high to low. Comparison of WARF scores at 3 and 16 weeks of the training program with pooled judgments of employability at the conclusion of the 36-week program and with job success after a minimum of 6 months of community employment showed significant correlations; the 3-week scores were almost as predictive as the 16-week ratings. Comparison of ratings of the same Ss by different observers showed high agreement in the rank ordering of the Ss but less agreement on actual scale values. Scores also indicated that behavior patterns predictive of job adjustment can be identified and measured. These measures are still largely judgmental and are deficient in their need for greater objectivity in behavior observations, for better inter-rater agreement, and for the provision of a basis for relating patterns of measured behavior to rehabilitation needs. (12 refs.) - *M. S. Fish.*

2402 Braemore Road
Columbia, Missouri 65201

## TREATMENT AND TRAINING ASPECTS--THERAPY

2768 Music therapy. *Ridge News* (Newsletter of the State Home and Training School, Wheat Ridge, Colorado), 7(4):1-6, 1970.

Major objectives of the music therapy program at Ridge State Home and Training School (Colorado) include the use of music as a means of communication, as a stimulative or sedative agent, as a corrective for physical problems such as locomotion or speech, and as a means of increasing attention span and building self-identification and prestige. In group therapy, children listen to music through stereophonic earphones for 25 minutes, 6 days a week. They may respond to the music in any way they like; however, too frequent use of rhythm instruments distracts from listening which would defeat the objective of increased attention span. Use of a variable speed record player encourages children with speech problems to sing along at the slower speed with minimum frustration. PMRs and SMRs listen to music while coloring pictures, working puzzles, or using rhythm instruments. In individual and small group therapy, a child's reaction to different types of music is observed and used in motivating him to improve his social behavior. Residents may take private lessons on any instrument, or they may be referred, for example, to take trumpet lessons to help improve breathing. The one-to-one relationship with an interested adult is an important aspect of the instrument lesson. (No refs.) - *J. Moody.*

State Home and Training School
Wheat Ridge, Colorado 80033

2769 WORTHINGTON, DONNA. Therapy with cerebral palsied children. *Music Journal*, 27(9):19,66, 1969.

In the music therapy program of the Spastics' Home and School in Owensboro (Kentucky), approximately 40 children with cerebral palsy, grouped according to their ability to respond, progressed from sitting and listening through accompanying strong rhythms with motions to songs learned by rote. A few learned to play the piano and flutophone. The sessions relieved the student's body tension, predisposed them to classroom work, and kindled their musical interest. Enjoyment of music was the primary goal with learning secondary. (No refs.) - *S. Glinsky.*

Spastics' Home and School, Inc.,
Owensboro, Kentucky 42301

2770 KHORANA, ANAND BHUSHAN. Pyrithioxine (Encephabol) in the treatment of mental retardation. *Indian Journal of Mental Retardation*, 2(2):108-114, 1969.

Of 20 MR children (CA 6 to 15 yrs) given pyrithioxine over a 3-month period, 12 showed an IQ increase of 5 to 15 points on psychometric testing. Most improvement was noted in those individuals with mild or moderate MR and in those whose MR was secondary to viral encephalopathy. Clinical evaluation also showed improvement in general behavior and speech. Pyrithioxine is thought to act by increasing cerebral metabolism and deserves



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further trial in the treatment of MR. (6 refs.) - *E. L. Rowan.*

Medical College and S.S.G. Hospital
Baroda, India

2771 GOLDBERG, JANICE B.; & KURLAND, ALBERT A. Dilantin treatment of hospitalized cultural-familial retardates. *Journal of Nervous and Mental Disease*, 150(2):133-138, 1970.

Cultural-familial MRs treated with Dilantin evidenced an increase in attention span, improved self-control and delay of gratification, increased ability to think logically and attend to cognitive tasks, improved interpersonal relations with adults, decreased temper outbursts, and reduced impulsivity and aggression. The Ss were 47 hospitalized male cultural-familial MRs (CA range 9-14 yrs). All Ss received a placebo for 2 weeks. For the next 8 weeks, the drug group (1/2 the Ss) received 100 mg of Dilantin twice a day, and the control group continued to receive a placebo. All Ss received thorough physical examinations at regular intervals. During the second week of the placebo period and at the end of the 8 weeks of drug treatment, all Ss were administered selected subtests of the Wechsler Intelligence Scale for Children (WISC), a cancellation task, and the Porteus Mazes. Teachers and cottage parents rated each child on the Devereaux Child Behavior Scale. Among the Devereaux behavior factors which evidenced a marked reduction in drug-treated Ss were distractibility (.05 level), ability to delay, and incontinence. There was a tendency for these Ss to become less aggressive, less impulsive, and less distractible. They evidenced significant improvement on the Similarities subtest (.05 level) of the WISC and a trend toward improvement on the Coding subtest. The placebo group showed an unexplained trend toward improvement on the Digit Span subtest, the cancellation task, and the Porteus Mazes. (9 refs.) - *J. K. Wyatt.*

University of Maryland
Baltimore, Maryland 21228

2772 DENING, KENNETH. Rehabilitation modifications for treating the mentally retarded. *American Corrective Therapy Journal*, 24(2):43-44, 1970.

The essential characteristics of MR define the limits of the approach in habilitation and rehabilitation work with PMRs and SMRs. Such characteristics include short attention span, receptivity on a low verbal command level, frequent occurrence of multiple disabilities, and relatively normal physical growth without corresponding mental growth. The greater part of training involves teaching a skill for the first time -- habilitation rather than rehabilitation. Technics used in standard rehabilitation must follow logical progressions, and habilitation skills must follow normal developmental and sequential patterns in order to achieve an optimal level in each MR. (1 ref.) - *C. L. Pranitch.*

Sunmount State School
Tupper Lake, New York 12986

2773 Horseback riding for handicapped children. *Physical Therapy*, 50(2):235-236, 1970.

Physical therapists have used horseback riding as a special therapy for mentally and/or physically handicapped persons. Horseback riding promotes relaxation in patients with spastic paresis. It also is a conditioning activity. (No refs.) *J. K. Wyatt.*

2774 OLSON, DONAEBILL G. Suggested roles of corrective therapy in mental retardation. *American Corrective Therapy Journal*, 23(6):174-175, 1969.

Corrective therapy provides motor training for MRs and opportunities for success. When MRs have reached a 3-year level of normal function, the social factors of physical activity can be introduced. In individuals whose motor development is below 3 years, the most accepted approach is the sequential method. Low organized games may be the limit of motor development for PMRs. Adapted games and sports and lead-up activities are appropriate for the severely, moderately, and mildly retarded. Gross motor objectives which should influence program design include the development of muscular strength, cardiorespiratory fitness, body balance and coordination, body speed and agility, and body flexibility. (No refs.) - *J. K. Wyatt.*

Robert Milton Home for Mentally Retarded Men
Redwood Falls, Minnesota 56283

2775 OLSON, DONAEBILL G. Role of corrective therapy in mental retardation. *Challenge*, 5(5):8, 1970.

Corrective therapy makes a valuable contribution to rehabilitation programs for MRs. The corrective therapist works with the MR in either physical education classes or in a clinical setting by evaluating the MR's motor

performance and designing physical and play activities geared to the MR's specific need. MRs with a motor development of less than 3 years require an individualized, sequential, and progressive approach. The basic criteria for any program are a graduated scale of performance in each activity, initial tasks sufficiently simple to guarantee success, and enough stress to induce continuous improvement. Specific activities for use in group or individual programs fall under the 5 general headings of muscular strength and endurance, cardiorespiratory fitness, body balance and coordination, body speed and agility, and body flexibility. (No refs.) *S. Glinsky.*

Robert Milton Home for Mentally Retarded
1011 East Elm
Redwood Falls, Minnesota 56283

2776 GORELICK, JACK. Serving the dentally disadvantaged. *Bulletin of the Dental Guidance Council for Cerebral Palsy,* 10(1&2): 2-5, 1970.

Despite great advances in community services for the physically and mentally handicapped in the last decade, very little progress has been made in expanding dental services. Among private dentists in New York City, 59% do not treat MRs, most of those who do had 5 or less MR patients in the previous year, and only 31% of those dentists who do not treat MRs will consider attending seminars involving treatment of the MR. Of 55 New York City agencies dealing with MRs, 8% have dentists on their staff; 11% provide dental evaluations, and 30% give oral hygiene instructions. Since MRs suffer enough from social discrimination, added discrimination, pain, and discomfort from untreated oral conditions should not be permitted. (3 refs.) - *C. L. Pranitch.*

Occupational Day Center
Association for the Help of Retarded Children
New York, New York

2777 SILVER, CAROLL M.; & BRACKEN, B. C. A simplified hip abduction splint for use in cerebral palsy. *Developmental Medicine and Child Neurology,* 12(1):77-78, 1970.

A simple, light, inexpensive hip abduction splint has been designed for postoperative use of children with cerebral palsy. The splint, applied after abductor myotomy combined with anterior obturator neurectomy operation for adduction contracture of the hip in these patients, is particularly applicable for the spastic child with athetoid movements. It does not stress the knees, it prevents mechanical irritation of the legs and feet, and the combination of the adjustable abduction bar with a universal joint at the junction of each thigh cuff reduces chafing of the thighs. For the child who does not have urinary and bowel control, it has sanitary advantages over postoperative casts. (4 refs.) - *M. S. Fish.*

225 Waterman Street
Providence, Rhode Island

2778 FORSYTHE, W. I.; & KINLEY, J. G. Bowel control of children with spina bifida. *Developmental Medicine and Child Neurology,* 12(1):27-31, 1970.

For bowel control of children with spina bifida, a combination of initial enemas and Senokot syrup with regular toileting (RT) is effective. A group of 47 children in 3 age groups (20, 2-4 years; 16, 4-8 years; 11, 8-10 years), all with some degree of muscle paralysis and 40 with no anal tone, was subjected to a series of treatment schedules. RT for 20-30 minutes, if unsuccessful, was followed by daily enemas which, if necessary, were followed by a suppository or micro-enema or by a daily purgative (Dulcodos tablets or Senokot syrup). Of the 47, 8 (17%) obtained normal bowel control with RT only. Enema treatment followed by RT was successful for 7 (18%) of the 39 remaining Ss. Suppositories and micro-enemas were successful for 5 of the 25 Ss undergoing this treatment. All 23 Ss treated with purgatives responded, although only 8 of 16 initially given Dulcodos tablets had permanent response. All 15 patients given Senokot syrup obtained regular bowel control. (5 refs.) - *M. S. Fish.*

Royal Belfast Hospital for Sick Children
Belfast, BT12 6BE, Ireland

2779 ROBSON, P. Management of infants with cerebral palsy. *British Medical Journal,* 1(5692):364, 1970. (Letter)

Because of the paucity of therapists suitably trained to manage infants with cerebral palsy, the use of therapists at the present time might be more effective on the regional rather than the district level. The therapists can provide the parents with exercise and management techniques. If monthly appointments are properly scheduled, one therapist can supervise the therapy of up to 50 infants daily and many of the disadvantages to the parents and the patients of living at some distance from the center can be avoided, particularly if other facilities at the center

are adequate. Some type of basic exercise system is required in the management of cerebral palsy; however, little evidence points to specific benefits resulting from any of the exercise techniques now in use. (No refs.) - *M. S. Fish.*

Guy's Hospital
London S. E. 1, England

2780 DONDI, ENRICO; & FORMICA, MAURIZIO M. Somministrazione per via orale di fosfolipidi corticali associati a vit. B6 e B12: Risultati terapeutici in un gruppo di soggetti "discinetici" (Oral administration of cortical phospholipids together with vitamin B6 and B12: therapeutic results in a group of "dyskinetic" subjects). *Neuropsichiatria Infantile,* 102(July-August):647-656, 1969.

In the rehabilitation of Ss affected by cerebral palsy, there is a need for pharmacological therapy and psychomotor re-education. Intramuscular or intravenous injections of phospholipids have been found to be useful. Phospholipids with Vitamin B6 and B12 added were administered orally to 53 children who exhibited cerebral palsy and slight mental insufficiency. The drug was given for varying lengths of time and with different frequency and length of interruptions. The Ss showed: less apathy with an occasional change to restlessness; a greater capacity for learning and assimilating the neuromotor rehabilitation treatment resulting, in many cases, in improved speech and significantly improved motor ability; but no significant modifications of the strictly neurological symptoms. The treatment seems to work quickly and can be interrupted and restarted without harm. (8 refs.) - *G. van Massenhove.*

University of Rome
Rome, Italy

## PROGRAMMATIC ASPECTS--PLANNING AND LEGISLATIVE

2781 COUNCIL OF STATE GOVERNMENTS. *Action in the States in the Fields of Mental Health, Mental Retardation and Related Areas:* 1968-1969. Chicago, Illinois, Interstate Clearinghouse on Mental Health, 1970, 49 p. $3.00.

Questionnaires completed by 32 state mental hygiene departments reflect the progress made in services to the mentally ill and MR during the report year. Financial reports and legislative changes underscore current interest in special education programs in the public schools for MR children and day care programs for MR children and adults. A summary of special education and day care programs is included for each state reporting. *E. L. Rowan.*

CONTENTS: Community Mental Health Services; Inpatient Facilities; Research and Training; Organization and Administration; Other Legislation.

2782 FROHLICHER, JEAN S. Elementary and secondary education amendments of 1969. *Programs for the Handicapped,* (January 7):71-1, 1971, 3 p.

The Elementary and Secondary Education Amendments of 1969, Public Law 91-230, increase federal commitment to the education of handicapped children. Title VI applies especially to MR educators by creating a single "Education of the Handicapped Act" and repealing separate authorities. The various sub-parts create a special bureau for the education of the handicapped, establish a National Advisory Council on Handicapped Children, and authorize grants to states and a program of regional source centers. In addition, the amendments establish grants for the training of personnel, authorize research and demonstration projects, provide funds for film and educational media, establish a new research and training program for children with specific learning disabilities, and continue various on-going set-asides in other titles. (No refs.) *S. Glinsky.*

Office of Education
Washington, D. C. 20201

2783 MOHAN, BRIJ. Planning and administration of mental health programmes, with particular reference to India. *Journal of Rehabilitation in Asia,* 10(1):29-34, 1969.

Mental health planning is pertinent for the world population and may be oriented toward prevention and treatment of mental illnesses,

restoration and promotion of mental health, and elevation of general mental health standards. A mental hospital is the largest psychiatric entity serving the requisites of the community, but in India most of the 36 mental hospitals are isolated from community needs and lack sufficient funds and modern therapeutic equipment and techniques. Many advanced general hospitals are equipped with psychiatric wards, but there is a lack of day hospitals and of psychiatric units especially designed to treat children and geriatric patients. India also lacks separate psychiatric units for care of psychopaths and criminal offenders and rehabilitation units and colonies for the MR and epileptics. Preventive mental health pilot projects have been outlined by the Indian Ministry of Health and should be implemented without delay to treat the vast number of patients (2:1000 of population) requiring psychiatric aid in India. (No refs.) *B. J. Grylack.*

No address

2784 Developmental Disabilities Services and Facilities Construction Act--Public Law 91-517. *Programs for the Handicapped,* Secretary's Committee on Mental Retardation. 70-5, (December 7), 1970. 7 p.

A new federal law (Public Law 91-517) increases the scope of the Mental Retardation Facilities Construction Act of 1963 by assigning broad responsibility for MR programs to the states and local communities. Important provisions call for the inclusion of persons with cerebral palsy, epilepsy, and other neurological handicapping conditions. Additional provisions include the establishment of a National Advisory Council with at least 1/4 of the membership representing consumers, a federal matching percentage of 75% for fiscal year 1971 and 1972 and 70% for 1973, the extension of university-affiliated programs and demonstration and training grants for 3 years, and a requirement that reasonable assurances be given that there will be no decrease in services. (No refs.) - *S. Glinsky.*

2785 CONNOR, LEO. The proposed CEC policy statement on governmental affairs. *Exceptional Children,* 36(7):539-544, 1970.

The Council for Exceptional Children believes that all levels of government must enact legislation in the best interests of exceptional children and endorses appropriations to improve the educational programs in this country for all children and youth. To this end, it is felt that exclusion clauses in compulsory school attendance laws deny equal opportunities and should be eliminated. The Council praises the establishment of the Bureau of Education for the Handicapped in the Office of Education and emphasizes that local, state, and federal levels must maintain close cooperation to ensure successful programs and effective legislation. No financial incentive should be provided to encourage a less than optimal program, and all government funded research grants should include a provision for direct application of the appropriate findings to practical utilization. (No refs.) - *B. J. Grylack.*

Lexington School for the Deaf
Jackson Heights, New York

## PROGRAMMATIC ASPECTS--COMMUNITY

2786 FEINGOLD, MURRAY; FAIN, TOBY; & GELLIS, SYDNEY. Information center to aid handicapped children. *New England Journal of Medicine,* 282(21):1216, 1970. (Letter)

A pilot center established in 1969 for information on Massachusetts facilities for children with physical, mental, or emotional problems is now continuing under the Massachusetts Department of Public Health. Of 697 requests for information received during the pilot project, 73% concerned MR and/or physically handicapped children. Follow-up study showed that 83% of the inquirers acted upon the information given; 70% had previously sought the information elsewhere without success. Fifty-two percent of the requests were from parents, but only 3.7% were from physicians despite several notices mailed to all physicians in the state. (No refs.) - *J. Moody.*

No address.

2787 AMES, THOMAS-ROBERT. Independent living for the mentally handicapped: A program for young adults. *Mental Hygiene*, 53(4):641-642, 1969.

The Young Adult Institute and Workshop in New York City has developed a program enabling mentally handicapped young adults (16 years of age and over) to move from dependent to relatively independent living and employment. An Adjustment Center gives counseling and guidance in problem-solving and develops social communication and employment skills. Participation in athletic events, recreation, a social club, and frequent individual counseling complete the program. A follow-up study indicated a 20 to 39% rate of gain and success. An on-going alumni program is maintained, and a hostel for working alumni is contemplated. (No refs.) *S. Glinsky.*

Young Adult Institute and Workshop, Inc.
260 Park Avenue South
New York, New York 10010

2788 LARUE, MARY T. Head Start in a Tennessee County. *American Journal of Nursing*, 70(1):114-116, 1970.

A Head Start, Office of Economic Opportunity, summer health care program in Memphis and Shelby counties (Tennessee) has screened an average of 25% of all youngsters entering school. The program, initiated in 1965, has grown and is made possible by the use of auxiliary health workers, mainly college students. The students perform the tasks of vision screening, history taking, collecting blood for microhematocrit studies and testing urine for sugar, protein, and blood cells. Care is provided by contracted physicians, hospital personnel, and county agencies. Funding now covers screening and selected care services. Over 4,000 preschoolers were screened and given required care in 1968. (No refs.) - *S. Glinsky.*

Baptist Memorial Hospital
Memphis, Tennessee

2789 SOLOMONS, GERALD. Services to handicapped children in the state of Iowa. *Developmental Medicine and Child Neurology*, 12(2):242-249, 1970. (Annotation)

Statewide diagnostic, clinic-care, and follow-up services for handicapped children in Iowa are centralized at the University of Iowa and are successful because of mutual respect, and collaboration shown by university, community, and state departments. Services include physical rehabilitation for eventual return to the community, diagnostic field clinics including mobile X-ray and laboratory vans, and facilities for handling behavior disorders and for special training of the MR. About 75 retarded children (average age 7-9 yrs) are accepted each year for borderline or educable intellectual functioning. Parents are encouraged to accompany the behavior-problem child, and both are seen by a staff of specialists. (3 refs.) *B. Berman.*

University of Iowa
Iowa City, Iowa 52240

2790 GRASSELLI, ANGELA; & MAGNONI, LILIANA. Esperienza di lavoro rieducativo affidato alle madri nel trattamento precoce di bambini con p.c.i. (An experience in re-education of mothers in the early treatment of children with cerebral palsy). *Neuropsichiatria Infantile*, 98(March):243-254, 1969.

The staff of the Children's Department at the Istituto Neurologico "C. Besta" in Milan (Italy) trains mothers in the treatment of their children afflicted with cerebral palsy. The mothers receive some general physiological and psychological knowledge and are brought together in discussion groups to help relieve their fears, discuss their problems, and share their experiences with the staff and with each other. A physiotherapist teaches the mothers how to apply the movement re-education as well as total psychic stimulation techniques. (10 refs.) - *G. Van Massenhove.*

No address

2791 DE BARROS MONTEIRO, WASHINGTON. Capacidade civil e responsabilidade criminal do deficiente mental (Civil capacity and criminal responsibility of the mentally deficient). *Mensagem da Apae*, 5(4):3-8, 1968.

MRs are incapable of normal understanding and appraisal of facts and, hence, of appropriate action in many situations; thus they tend to be treated as diminished persons. The question arises as to their status in society and their rights as a person. Their situation does not detract from their right to life and to be treated with respect. Under Brazilian law, they retain their "passive rights", such as to own and inherit, and are even entitled to some special protection. Yet their "active" rights are curtailed; they are put under tutelage, as are minors, so that their acts have no legal value; however, special safeguards are set for their protection against inept or unscrupulous guardians. Since MRs may lack moral sense

and, hence, responsibility, they are not criminally liable, but society may protect itself by having them institutionalized. (10 refs.) - *G. Van Massenhove.*

University of Sao Paulo
Sao Paulo, Brazil

2792 WOOD, TOM. Jackson County: A study in resourcefulness. *ICRH Newsletter,* 4(7):1,4, 1970.

Private initiative has developed the Jackson County (Illinois) Work Activity Center, which provides day and evening rehabilitation and recreation programs for 25 adult MRs. The project owes its success principally to the establishment of a board of governors composed of key community, professional, and business leaders who were able to involve others and secure necessary grants, donations, and voluntary labor and materials. These contributions enabled the center to devote its finances to MR programs exclusively. Not only has the project aided MRs, but it has involved the community and become a source of considerable pride to all associated with it. (No refs.) - *S. Glinsky.*

Southern Illinois University
Carbondale, Illinois 62901

2793 WOOD, TOM. Fineson House: A new home for the retarded. *ICRH Newsletter,* 4(9):1-2, 1970.

A hostel has been established in Manhattan for adult MRs; the home presently has 6 occupants and will eventually house 25 or more. Applicants are carefully screened to identify those who require little or no custodial care and are able to hold at least a part-time job or work in sheltered conditions, who live under undesirable conditions or will lose living quarters, and who can live compatibly with others. House personnel include a resident couple, maintenance man, and 2 cooks. Residents may come and go as they wish, have a minimum of supervision, and are encouraged to continue social and recreational activities, either in or out of the house. No programmed activities exist. Nominal rent is charged and dental and medical care furnished if needed. The house, jointly sponsored by the New York Association for Handicapped and Retarded Children and the state, has successfully overcome initial neighborhood opposition. (No refs.) - *S. Glinsky.*

Southern Illinois University
Carbondale, Illinois 62901

## PROGRAMMATIC ASPECTS--RESIDENTIAL

2794 NATIONAL SOCIETY FOR AUTISTIC CHILDREN. *Facilities Available for Autistic Children.* London, England, October 1970, 15 p.

There is a great shortage of facilities for the approximately 6,000 autistic children in Great Britain. Most such educational units are located in the South-East, and there are large areas of the country having hundreds of autistic children which have no facilities for them. All 30 British schools for autistic children are briefly described. (No refs.) *J. Moody.*

2795 Care of mentally retarded. *British Medical Journal,* 1(5695):517, 1970. (Editorial)

Monies allocated by the present British Secretary of State for Social Services to improve the depressing condition of hospital care for the MR are only a palliative. A great deal more money is urgently needed and attempts by the Secretary to blame these conditions upon the medical profession are completely without foundation. What is required is a general awakening of the public and parliament to the disgraceful inadequacies in hospital care for the MR. (2 refs.) - *S. Glinsky.*

2796 The Foster Grandparent Program--A Progress Report--1969, *Programs for the Handicapped,* (October 30)69-15, 1969, 5 p.

After 4 years, the Foster Grandparent Program, which provides the services of older persons for institutionalized infants and young children, has shown remarkable progress. The program now operates 68 projects in 40 states and Puerto Rico, with 2,721 persons, over-age 60,

working with 5,442 retarded children in 75 different settings per day. The children have improved in self-care and motor skills, and this has, in turn, raised the morale of institution staffs. The foster grandparents have benefited from enhanced self-esteem and sense of purpose in living, improved health and feeling of well-being, and increased security from added income. The program also provides the foster grandparents with counseling on personal matters, federal programs applicable to them, Social Security, income tax, and voter registration. (No refs.) - *S. Glinsky.*

Secretary's Committee on Mental Retardation,
Washington, D.C. 20201

2797 FRASER, W. I.; & McKELLAR, BARBARA. Three pupils at Lennox Castle. *Special Education,* 58(3):18-21, 1969.

Three girls attending a residential school for EMRs with severe behavior problems are discussed. The 3 had backgrounds of appalling material and cultural poverty. S1, (MA 6, CA 9), with minimal brain damage, has made considerable progress within the year: her reading improved from 5 to 6 1/2 years and multiplication and division from 0 to 6 1/2 years. Although still hyperactive, she now shows few catastrophic reactions. S2, a psychotic child (CA 10, IQ 68), has made no progress academically during the year. She continues to be aloof and exhibits illogical anxiety despite staff attempts to build confidence and self-respect. S3 (IQ 55, CA 13), a resident of the school for 3 years, has not progressed in school beyond the 5-year level. Lacking all sense of trust, she remains unpredictable, untrained, and uncommunicative. The 3 cases indicate that treating problem children who are emotionally deprived in early years can almost be insurmountable and that continuous reviewing of curriculum content and organization and methods is needed to suit each child's specific needs. (2 refs.) - *C. L. Pranitch.*

Waverly Park School
Waverly Park, Scotland

2798 WARBURG, METTE. Tracing and training of blind and partially sighted patients in institutions for the mentally retarded. *Danish Medical Bulletin,* 17(5):148-152, 1970.

Out of 706 MRs, 5% were legally blind and 7-8% were partially sighted. Although 2/5 of these can be considered TMR or EMR, other handicaps, such as seizures or hearing defects, often result in their being understimulated causing them to appear more retarded than they actually are. Lack of corrective glasses is the major cause of weak sightedness in institutionalized MRs. Uncorrected vision causes decline in the MRs' ability to perform close work. This decline is often attributed to increasing dementia or senility rather than uncorrected vision. Prescription glasses is a practical method of rehabilitation for a large number of visually handicapped MRs. Initial training of blind and partially sighted MRs should emphasize mobility training, touch and hearing discrimination, and, most importantly, speech therapy. Later, visually handicapped MRs may follow the common curriculum for blind and partially sighted with self-care skills a major concern. The staff for visually handicapped MRs should include persons who are trained in the education of MRs and who are trained in the education of the blind and the partially sighted. (8 refs.) - *C. L. Pranitch.*

Eye Clinic for the Mentally Retarded
Sognevej 40
Copenhagen, Denmark

2799 ANDERSON, ROBERT M.: & STEVEN, GODFREY D. Policies and procedures for admission of mentally retarded deaf children to residental schools for the deaf. *American Annals of the Deaf,* 115(1):30-36, 1970.

The policies and procedures for the admission of MR deaf children to residential schools for the deaf were investigated nationwide for possible improvement. A total of 64 residential schools from 43 states, representing 80% of all students in such schools, responded to inquiry forms. Information sought from the administrators included psychological testing procedures, criteria for admission, criteria for defining MR, and the prevalence of MR deaf children. The results indicated considerable variation in testing and admission procedures as well as in MR definition. Prevalence figures were incomplete. The data suggest a need for improved educational services for MR deaf children, development of standard terminology and norms, and the compilation of accurate incidence and prevalence figures. Present practice requires critical examination by educators of the MR deaf, university faculties preparing professional personnel, researchers, parents of the deaf, and vocational rehabilitation specialists. (5 refs.) - *S. Glinsky.*

Illinois State University
Normal, Illinois

2800 WOLFENSBERGER, W.; & HALLIDAY, R. A. Socio-ecological variables associated with institutionalization of retardates. *Journal of Mental Deficiency Research*, 14(1): 1-15, 1970.

Computer analysis of gross socio-ecological variables for the 93 counties of Nebraska and their rate of institutionalization of MR revealed a multiple regression program which accounted for 45% of the criterion variance; while no individual measure was significant, the combination of number of institutionalized MRs, land area, per capita effective buying income (negative), total property valuation (negative), and per capita valuation (negative) suggests that large, poor counties are most likely to institutionalize MRs. This gross social approach should be considered before clinical and family variables are investigated relative to antecedents of commitment. (65 refs.) - *E. L. Rowan.*

University of Nebraska Medical Center
Omaha, Nebraska 68105

2801 STOCKMANN, FRITZ. Behinderte Kinder in Anstalten und ihre Beziehungen zu Angehorigen (Mentally retarded children in institutions and their relations with family members). *Praxis der Kinderpsychologie und Kinderpsychiatrie*, 17(2):34-37, 1968.

The contacts which MRs attending institutions have with family members were investigated to determine their effect upon development of the MRs. The Ss were 169 girls and 231 boys (CA range up to 15 years) who required intensive care. Data were analyzed regarding frequency and type of familial contact, family members involved, and type of family situation. The majority of the institutionalized children were of legitimate birth and from ordered family circumstances. Most of these families cared for their MR member(s). Illegitimate MRs from socially weak families were predominantly capable of development and education. The proportion of family members caring for the second group was relatively small and inversely dependent on intelligence. The results indicate the need for increased outside contacts for those children without contacts in order to further their development, combat hospitalism, and accomplish the reintegration of the MR into the community. (7 refs.) - *S. Glinsky.*

Lindenstrasse 7
213 Rotenburg/Hannover, Germany

2802 STOCKMANN, FRITZ. Zur Situation lernbehinderter Kinder in Heimen und Anstalten (On the situation of retarded learners in homes and institutions). *Praxis der Kinderpsychologie und Kinderpsychiatrie*, 18(4):125-128, 1969.

The difficulties and problems encountered by institutionalized MRs as a result of improper care and attention were investigated in 50 male and female MRs (CA range to age 10 yrs; IQ > 60) attending special school. One-half of the Ss were legitimate and one-half were illegitimate. Analysis revealed that 76% came from other institutions and parents' homes, that a high number either grew up in institutions or lived in several institutions, and that many behavioral disturbances were institution-related. The results confirm the necessity of early identification and treatment of children suffering from lack of proper care and attention, the need for sufficient competent personnel, larger and more differentiated institutions to avoid transfers of the children as much as possible, and the establishment of centers to diagnose lack of care symptoms in MR children and to plan therapy. (7 refs.) - *S. Glinsky.*

Lindenstrasse 7
213 Rotenburg/Wumme, Germany

2803 FOTHERINGHAM, JOHN B. Retardation, family adequacy and institutionalization. *Canada's Mental Health*, 18(1):15-18, 1970.

Institutionalized MR (IMR) children were matched on age, sex, and IQ with noninstitutionalized MR (NIMR) children, and their families interviewed at the beginning and end of a 12-month period. Statistically significant findings were: the IMRs had a lower social maturity quotient than the NIMRs; families of the IMRs were at a lower socioeconomic level than those of the NIMRs; in both samples, a loss of intellectual functioning over time was recorded. The IMRs exhibited more behavior disorders and less adequate social relations. Their families evidenced more signs of poorer physical and mental health, less adequate physical care of their children, and less adequate marital and social relations. The need to institutionalize is associated with relative poverty, behavior disorders in the MR, and parental inadequacy. Parents who institutionalized their MR did not experience relief, while parents who kept their child also showed effects of continued stress by a decreased level of functioning. (No refs.) - *C. L. Pranitch.*

No address

2804 CLARK, D. F. The psychologist and interpersonal relationships in a mental subnormality hospital. *Journal of Mental Subnormality*, 16, part 1(30):33-44, 1970.

The clinical psychologist's important role in the mental-subnormality hospital in mediating staff-patient relationships and inter-staff and inter-patient activities is constrained by the aspects of the hospital as a "total institution" and the hospital's tendency to utilize the medical-model organization and ethos. A "total institution" provides residence and work for a large number of like-situated individuals following a specific regimen and separated from society at large, with a wide gulf between patients and staff. The medical model is unsuitable because of the many problems in the mental hospital not encountered elsewhere. The psychologist in this setting has 2 functions: professional (testing and diagnosis, counselling, psychotherapy, or behavior therapy) and executive (assigning patients to rehabilitation and training programs, manipulating staff-patient associations, and communication). Practical proposals are presented for ameliorating work and therapy relations, and for dissolving artificial boundaries among patients, staff, and community. (18 refs.) - *B. Berman.*

Ladysbridge Hospital
Banff, Scotland

2805 BALLINGER, B. R. Community contacts of institutionalised mental defectives. *Journal of Mental Subnormality*, 16(30):17-23, 1970.

A 3-month survey of the community contacts of 626 institutionalized MRs found that 56.6% received at least 1 visit. Twenty-six percent had only negligible community contacts and these tended to be patients who were older, less intelligent, and hospitalized longest. A small number (7.8%) received 12 or more visits, and 39% received at least 1 piece of mail. Highest percentage of patients visited was in the lowest IQ range; patients in the higher IQ ranges tended to be less isolated (defined as not visited, received no mail, had no leave and made no visits to town). Those patients rated "difficult" or "aggressive" had visiting rates little different from the rest. It appears that family contacts fare better when the hospital is close to the community it serves. (5 refs.) - *B. Berman.*

Strathmartine Hospital
Dundee, England

2806 GUNZBURG, H.C. *Journal of Mental Subnormality*, 16(30):1-3, 1970. (Editorial)

The "instant ward" (a temporary, pre-fabricated unit) does not meet the needs of the MR—it directly contradicts established principles of concept and execution, and can be tolerated only as a stop-gap. It may temporarily relieve urgent space needs, but the danger is that it encourages acceptance of the ready-made unit. Attractive as the instant unit may be to those who seek quick solutions, professionals feel that adequate hospitals for the MR must avoid standardization with its accompanying depersonalization and regimentation. There is need for an architecture that will serve the human needs of the MR and assist in their socialization. (No refs.) - *B. Berman.*

2807 SMITH, MERYL CALDWELL. Residential care of the severely and profoundly retarded child. *Australian Journal of Mental Retardation*, 1(1):30-33, 1970.

SMR and PMR children are more dependent than higher grades upon the total care of workers in the field of residential care and deserve attention and love as well as training. At Grosvenor Hospital in Summer Hill (Australia), domestic chores of the staff are minimal during the day to allow each nurse time to devote to the children in her care. The ratio of staff to patients during the children's active hours is 1 to 6. The staff tries to make every minute a teaching minute, and even toilet training and mealtime constitute important learning periods. The program of activities is designed to meet the needs and potential of each group of children, with emphasis on maximal attainments. Regular discussions enable the staff to evaluate current activities and to plan new approaches. Since the hospital cannot provide normal family life to its residents, the staff and facilities must be utilized effectively to make the environment a stimulating and happy one. (No refs.) *B. J. Grylack.*

Grosvenor Hospital
Summer Hill, New South Wales, Australia 2130

2808 CLAYTON, TEDDYE. HIP grants benefit the mentally retarded. *Hospital and Community Psychiatry*, 21(2):37-44, 1970.

Almost $45 million has been spent on the Hospital Improvement Program (HIP) since 1964, and at the present time, more than

34,000 persons residing in state institutions for the MR benefit from HIP grants. The program at Parsons State Hospital and Training Center (Kansas) is designed for residents from 6 to 21 years of age and includes vocational and recreational programs which attempt to approximate life in the community. At Porterville State Hospital (California), the project serves adolescent boys and young men and attempts to habilitate the emotionally disturbed, mildly or moderately retarded person. Severely and profoundly retarded children (CA 9 to 14) have been taught self-help skills in a project at Pacific State Hospital (California). This project also prepares PMR and SMR children for return to their homes or placement in a foster home. At Kansas Neurological Institute (Kansas) a crisis intervention unit which offers immediate short-term hospital care for MR children at times of family emergency has been established. The goal of the project at Laconia State School and Training Center (New Hampshire) is to establish a total therapeutic community in the 1020-bed institution. Academic, vocational, and recreational programs are used to bring high functioning residents (CA range 6 to 60) to maximum potential at Greene Valley Hospital and School (Tennessee). (No refs.) - *J. K. Wyatt*

1700 18th Street, N. W.
Washington, D. C. 20009

2809 Washington. Social and Health Services Department. *Statistical Report for Office of Handicapped Children -- Mentally Retarded. Fiscal Year 1970.* Olympia, Washington, 1970, 49 p.

As of June 30, 1970, the Office of Handicapped Children (Washington) had a resident population of 3,738 persons in 5 institutions; this represented a reduction of 267 persons from 1969. During 1969, 348 MRs were placed in the community or discharged; this number increased to 547 in 1970. Due to the emphasis on community orientation, community day care centers now service 1,500 MRs. Many 1970 placements were to group homes for persons between the ages of 21 and 64. Increased placements were due to an increase in available community programs and other supportive resources. Many of the persons placed would never have been institutionalized under present admission policies. The current policy is that only PMRs, SMRs, and some moderately MR reside in institutions. The overall plan is that residence in an institution will be for a limited time so that an individual can participate in a specific program designed to facilitate life in the community. The median length of stay for institutionalized MRs as of 1970 was 11.9 years, and median age was 22.7 years. (No refs.) - *J. K. Wyatt.*

2810 Care of mentally retarded. *British Medical Journal,* 1(5695):517, 1970. (Editorial)

The allocation of funds to upgrade hospital services, especially clothing and food, for MR patients in Britain is but a first step in the right direction. It is hoped that an awakening community conscience will continue to spur the funding of resources to run the Health Service and assure adequate staffing by the medical profession. (2 refs.) - *E. L. Rowan.*

2811 Debate on mental hospitals. *British Medical Journal,* 1(5694):508, 1970.

The medical profession in Britain should not allow hospitals for the MR to be considered professional backwaters and should endeavor to provide more than custodial care. Present appropriations will bring expenditures for food up to that spent on other mentally handicapped patients; MR patients will also be provided with personal clothing. The dedication of those few doctors and nurses working with the MR is exemplary but more professional interest should be directed to this problem. (No refs.) - *E. L. Rowan.*

2812 MITCHELL, ANNA C.; & SMERIGLIO, VINCENT. Growth in social competence in institutionalized mentally retarded children. *American Journal of Mental Deficiency,* 74(5):666-673, 1970.

Institutionalized MR and PMR children require formal teaching in addition to routine care if they are to maintain or improve their preadmission social quotients (SQ). The Ss were 2 groups of 25 institutionalized children who met initial screening requirements: were admitted between specific dates and had either received no special teaching (routine care group) or had had special teaching from the time of admission (activity therapy group). Pre- and post-admission tests (Vineland Social Maturity Scale) were utilized to determine the SQ for each S. Groups were matched for age and SQ both pre- and post-admission Vineland. The teaching program for the activity therapy group was individualized instruction (constructive play, eating, and self-care skills) of each S by 3 full-time therapists in each nursery of 55 children.

The routine care group received the care typical of a state institution for MR. Results showed that of the special activity group with preadmission SQ above the mean, 7 gained in or maintained their SQ while 6 showed a loss; of the 12 Ss in this group with preadmission SQ below the mean, 4 maintained or gained in SQ and 8 showed a loss. In the routine care group, 22 out of 25 showed a loss in SQ over a comparable period, with only 1 above the pre-admission mean SQ and 2 below that level either maintaining or gaining in SQ. In a comparison of the 2 groups on 42 items from the Vineland, the activity therapy group showed better gains than the other group on 25 items and equal gains on 17. In none of the items did the therapy group show less progress than the routine care group. Since routine care of institutionalized MR patients shows no advantage over home care, the study suggests that institutionalization of the MR child should occur only when special training is available in order to prevent actual decline in social competence. (13 refs.) - *M. S. Fish.*

Fall River Mental Health Center
Fall River, Massachusetts 02780

2813 SHELLHAAS, MAX D; & NIHIRA, KAZUO. Factor analytic comparison of reasons retardates are institutionalized in two populations. *American Journal of Mental Deficiency,* 74(5):626-632, 1970.

An analysis of the factors related to reasons MRs are referred to institutions in 2 different populations indicates that 3 common factors (reasons for arrest and court appearance, cultural deprivation, and antisocial aggression) exist for both populations. Other factors, either with some similarity to both populations or specific to only one of the populations, were also identified. The Ss were 2 institutionalized groups of retardates in Kansas and North Carolina, age 6 to 22 years. The sex and IQ classification by state was: Kansas - 170 males, 100 females, 128 EMRs and 141 TMRs; North Carolina - 76 males, 65 females, 80 EMRs, and 61 TMRs. Thirty-four variables representing reasons for referral of the retardates were grouped into factors, the first 10 of which accounted for about 88% of the total variance in the correlation matrix of each sample. These were rotated orthogonally and coefficients of congruence were determined. Factors I, II, and III (arrest and court appearance, cultural deprivation, and antisocial aggression) had the highest congruence coefficients (0.79, 0.79, and 0.64, respectively), indicating that these factors were common to both populations. Four factors from each study (coefficients between 0.4 and 0.6) had some similarity between the 2 populations. Antisocial aggression (North Carolina group) had a congruence coefficient of 0.53 with the factor of incompatibility with parents (Kansas group); both contained the variables of difficulty in getting along with the mother and father. School learning problems were common to both populations with the relative importance of these variables appearing greater in the North Carolina population. The factor illegitimate child-broken home (Kansas group) had 0.44 and 0.41 congruence coefficients with 2 factors in the North Carolina population relating to illicit sexual conduct and illegitimacy-inadequate home life. Factors specific to the Kansas population included "sloppy individual" and school disruption. Psychiatric and delinquency factors were specific for the North Carolina group, and may have reflected the fact that Kansas, unlike North Carolina, has separate facilities for the MR and the psychiatric patient. (5 refs.) - *M. S. Fish.*

No address

2814 FREEMAN, HUGH. Emergency ward. *Lancet,* 1(7640):239, 1970. (Letter)

Rather than expending large sums on already overcrowded existing hospitals for MR and handicapped patients, the development of small residential units which can draw on local educational and hospital services offers a more realistic solution to the problem. This community-based network of services can only be developed if the sums now spent on hospitals and on marginal projects are reduced substantially since no major increase in total health care expenditures is anticipated. Long-stay patients should be kept in their home areas in close touch with their families, and this can be encouraged only by the development of small, local units along with early assessment capabilities and comprehensive social service facilities. (2 refs.) - *M. S. Fish.*

Salford Royal Hospital
Salford 3, England

2815 BALTHAZAR, EARL E: & STEVENS, H. A. Managing the mentally retarded through interdisciplinary action. Madison, Wisconsin, Central Wisconsin Colony and Training School Research Department, 8(3), July 1971.

The historical problem of institutions for the MR rests essentially in the failure of interdisciplinary communication and the

consequent lack of interchange of vital information. Ten clinical reports of an actual case (an institutionalized 8 yr old female with Down's syndrome) are provided to demonstrate the adequacy of the multidisciplinary approach to the institutional management of SMR's and PMR's. The included reports assess medical condition, psychological adjustment, and biosocial status of the S, and lead the authors to conclude that careful study and wise direction of program staffing committees can do much to alleviate some of the difficulties in residential management. (2 refs.) - Author abstract modified.

## PROGRAMMATIC ASPECTS--RECREATIONAL

2816 AUSTIN, PATRICIA. This thing called play. *Deficience Mentale/Mental Retardation,* 20(3):14-16, 1970. (French translation, p. 35-38.)

Numerous recent research and demonstration projects provide conclusive evidence that physical education programs improve the general fitness and motor abilities of MRs. Those activities that involve the learner wholly and force him to make decisions and to think about what he is doing appear to hold the greatest promise for stimulating intellectual growth. Programs that depend entirely upon the teacher for direction appear to be less effective in developing self-directed and responsible children. Although it has been demonstrated that recreation and physical activity increase productivity and that leisure-time skills are an important factor in successful employability, vocational training programs seldom include play experiences. Few communities in the United States and Canada offer recreation or sports programs for the handicapped or retarded. In institutions, such programs are often limited to the less severely retarded residents. A promising development in a few progressive institutions is the utilization of community facilities and personnel in the conduct of recreation programs. (no refs.) *J. Moody.*

University of Alberta
Dept. of Physical Education
Edmonton, Alberta, Canada

2817 POMEROY, JANET. Graduation in recreation program. *Journal of Health, Physical Education, and Recreation,* 40(9):79-80, 1969.

A primary goal of the Recreation Center for the Handicapped, which provides transportation and year-round recreation and camping for SMRs, is to integrate even the most severely handicapped and MR individuals into community recreation programs. Seventy-two previously institutionalized MRs participated in the 3-year program after which they had a graduation ceremony which declared them capable of participating in recreation activities at public recreation and park facilities within the community. The graduation ceremony was planned and conducted through voluntary efforts, donations, and contributions. The graduates will now participate in recreational events at several playgrounds and community centers through an expanded program of the San Francisco Recreation and Park Department. (No refs.) - *C. L. Pranitch.*

Recreation Center for the Handicapped
San Francisco, California

2818 U.S. OFFICE OF EDUCATION. Austin State School stresses physical activity. *Journal of Health, Physical Education, and Recreation,* 40(8):73-74, 1969.

In its third year, the Austin School Physical Education Research Project has developed a recreation program for SMRs and PMRs. The curriculum included developmental activities, hiking, dancing, contact sports, and water games. Initially, PMR and SMR men walked a mile hiking trail holding onto ropes: now they run it on their own, decreasing time from an average of 18 minutes to 9 minutes. In some cases, as physical capabilities improved, so did mental abilities, and as a result, some MRs were reassigned to higher ability groups. Residents have become more verbal, more cooperative, show more initiative, and are more aware of the efforts of others. Upon termination of the project, physical education will continue to remain an integral part of institutional care. (No refs.) - *C. L. Pranitch.*

2819 ALBERT, RUSSELL. A concentrated program of outdoor education for educable and trainable retarded. *Therapeutic Recreation Journal*, 3(3):25-28, 1969.

The Bowen Children's Center initiated a 7-week outdoor program for 106 MR youth (CA 9-17 yrs) designed to establish awareness of the outdoors, to study nature through direct contact, and to provide a "change of pace" for residents and teachers. Seven units of study were selected (such as plants and water life), and each unit was approached through 4 subject areas: science, art, language development, and social studies. Films, field trips, night campfires, and cookouts were included. In order to evaluate the program, residents were pretested the first day in all subject areas and post-tested after the seventh week of instruction. The differences in the pre-test and post-test means in each area were significant beyond the .01 level. Success of the program raises the possibility of whether MRs with proper training could function quite well in outdoor camping and recreational facilities as part time or full time employees. (No refs.) - *C.L. Pranitch.*

A.L. Bowen Children's Center
Harrisburg, Illinois 62946

2820 GROFF, LINDA BRUNDAGE. Recreational arts and crafts for the mentally retarded. *Therapeutic Recreation Journal*, 3(3)29-32, 1969.

To develop creative expression and aesthetic appreciation, arts and crafts should be included in the education of MRs. A dynamic arts and crafts program nourishes a sense of satisfaction, discovers potential hobbies that can be continued at home, offers recreation for those who cannot participate in physical activity, provides an emotional outlet, expresses individual awareness, and develops good work habits. Teaching procedures and principles include emphasizing demonstration, using step-by-step procedures, using group projects, letting each child develop according to his ability, offering choices, and displaying completed projects in exhibits. Arts and crafts should be an integral part of recreation but unique in its contributions. (7-item bibliog., 5 refs.) - *C. L. Pranitch.*

Recreation and Parks Department
Arlington, Virginia

2821 HOLT, LAURENCE E.; JOINER, LEE M; HOLT, ALYCE F.; & SHAFTER, ALBERT J. Silvia versus Red Cross methods in teaching swimming to EMR children. *American Journal of Mental Deficiency*, 74(4):483-487, 1970.

A comparative study has shown that the Silvia (Hand and Foot Concept) method of teaching swimming to EMRs is generally superior to the Red Cross method and is more advantageous for long-term and short-term programs. Forty EMRs were assigned at random to 2 Silvia and 2 Red Cross treatment groups. A multiple linear regression analysis was conducted to determine whether the Silvia method produced superior performance in distance covered when the front crawl stroke and backstroke were used as post-tests. Peabody Picture Vocabulary Test (PPVT) scores obtained after training were used to test for group differences on an intellective measure. Results indicated that the 2 treatments yielded equivalent performance on the backstroke, while the Silvia method was superior for the front crawl stroke. Since no teacher-treatment interaction was noted, the possibility that the superiority of the Silvia method on the front crawl stroke was due to teacher bias had to be excluded. Neither group was overloaded with students of relatively superior IQ. The Silvia method allowed for more efficient use of lesson time. (4 refs.) - *B. J. Grylack.*

New Mexico State University
Las Cruces, New Mexico 88001

2822 McGRIFF, VERN H. Social groupings enhance recreation opportunities for retarded children. *Journal of Health, Physical Education, Recreation*, 41(1):85-87, 1970.

Both segregated and purposefully integrated social groupings for recreation are advantageous for mildly retarded children and slow learners. MRs may not participate in the community recreational programs planned for them because of an inability to handle leisure time. Public schools should assume the leading role in aiding these children to develop the personal and social values and skills essential to their personal satisfaction now and to their effective utilization of leisure time in the future. Recreational programs can assist mildly retarded children and slow learners in overcoming mild intellectual deficits by providing the stimulating and structured environment vital for behavioral adaptation. Segregated social groupings offer greater opportunities for skill instruction and represent the best type of program for the largest number of MRs and the youngest age group. Deliberately planned integrated social groups promote the acceptance of these children into the group. Combinations of social groups provide MR children with the advantages of both groups.

Personnel in the fields of physical, health, and recreational education must continue to seek better approaches and solutions to problems encountered by exceptional children. (16 refs.) - *B. J. Grylack.*

Jersey City State College
Jersey City, New Jersey

2823 NESBITT, JOHN A. The handicapped child: Therapeutic recreation service needs in program, manpower and research. *Therapeutic Recreation Journal,* 4(2):33-40, 1970.

Recreation for the handicapped is more important now than in the past because of the large expansion of recreation and leisure time activity in recent years. Recreation provides the handicapped with personal fulfillment. Exclusion from recreation services can result in social and cultural deprivation for the handicapped. Major obstacles to the development of recreation programs for the handicapped within the framework of the programs of public parks and recreation departments arise in the areas of: public and agency apathy, indifference, or lack of awareness; program techniques; policy making; financing; personnel practices; employee training and education; and research and evaluation. There must be a commitment to serve the needs of the handicapped by the public parks and recreation departments. Schools must extend their programs to include education for leisure and recreational fulfillment. The therapeutic recreation speciality must perform a more meaningful social role in terms of legislation, research, and practice. The community must recognize the necessity for providing recreation experiences for the handicapped. (21 refs.) - *J. K. Wyatt.*

San Jose State College
San Jose, California 95112

2824 SHIVERS, JAY S. Rationale for an outdoor recreational learning facility for the mentally retarded. *Therapeutic Recreation Journal,* 4(2):26-32, 1970.

The outdoor education project at the Mansfield State Training School (Connecticut) is divided into levels which include an area for those with serious limitations in play skills and motor abilities, a story book playground, an adventure playground, an area with vehicular equipment, a children's village, and a nature trail. These planned play areas allow the child to progress at his own rate and may be used on a self-directing basis or under guidance. The equipment in these outdoor learning areas allows individuals to progress at their own speed, stimulates interest, motivates the unaware, and provides developmental sequences which provoke participation and stimulate imagination and fantasy. (1 ref.) - *J. K. Wyatt.*

University of Connecticut
Storrs, Connecticut 06268

2825 MUNDY, C. JEAN. A conceptualization of recreation programming for the mentally retarded. *Therapeutic Recreation Quarterly,* 4(2):22-25, 1970.

Basic assumptions of a theoretical model for planning recreation programs for the MR are that recreation programs can contribute to the development of the MR, should be individually designed, and can be offered to homogeneous groups. Program planning should be preceded by assessment. An integrated and purposeful program requires the development of general goals and specific objectives for individuals and/or homogeneous groups. Appropriate individual and group activities should be selected after analysis of the component parts of recreation activities. Method of presentation should be carefully selected to obtain the most beneficial results. Individual changes should be periodically evaluated to assess the program and plan for future development. (1 ref.) *J. K. Wyatt.*

Winthrop College
Rock Hill, South Carolina 29730

2826 NESBITT, JOHN A. Therapeutic recreation service curriculum today and the need for change. *Therapeutic Recreation Journal,* 4(2):2-3, 1970. (Editorial)

Although the basic features of the recreation and therapeutic curriculum which have produced responsible, capable, and effective workers should be retained, the curriculum should be revised to reflect changes in society and to anticipate the skills and knowledge which will be needed in the future. Primary considerations which dictate the need for curriculum evaluation are analysis of increasing expectations and needs for services, the enhanced ability to provide services, growing manpower needs, the changing nature of recreation as a profession, the emergence of professionalism, and the need for professionals to function as change agents. During the last 10 years the number of persons rehabilitated yearly by the Social and Rehabilitation Service has

grown from 100,000 to 200,000. (No refs.)
*J. K. Wyatt.*

San Jose State College
San Jose, California 95112

2827 NEAL, LARRY L.; & ORCHARD, GRACE. A descriptive study of the prevalence of therapeutic recreation camping by junior and senior high school age EMR & TMR youth. *Therapeutic Recreation Journal*, 4(2):1, 44-45, 1970.

A survey of camping experiences, during the 3 previous summer months, of 391 youths (229 males, 169 females; 332 EMRs, 59 TMRs; mean CA 15-3 yrs) revealed that 59% of the girls and 55% of the boys had camped one or more times. Fifty-three percent of the campers had gone with friends. Other camping experiences had been in association with community agencies, service groups, churches, and federal projects. Seventy-five percent of the campers had participated in informal camping experiences, 20% had attended residential camps, and 5% had attended day camps. Data for this survey were obtained by teachers in individual sessions, recorded on data-processing sheets, and analyzed in a pre-programmed computer program. (No refs.)
*J. K. Wyatt.*

University of Oregon
Eugene, Oregon 97403

2828 THOMPSON, MORTON. The status of recreation for the handicapped as related to community and voluntary agencies. In: American Association for Health, Physical Education and Recreation; & the National Recreation and Park Association. *Physical Education and Recreation for Handicapped Children--Proceedings of a Study Conference on Research and Demonstration Needs*. Washington, D.C., 1969, p. 25-28.

The present level of recreation facilities and programs for the handicapped is inadequate, but demonstration programs and a change in public attitudes promise marked improvements. In 1965, a nationwide study surveyed public recreation programs for MRs and the physically handicapped. Initial questionnaires sent to 2,000 recreation departments resulted in 427 replies, of which 202 responded to a more detailed questionnaire. The findings indicated 87% of the responding communities administered their own programs; unclear staffing situations; only partial tax financing; inadequate transportation; a preponderance of activities for MRs; and a variety of facilities. The reasons for the nationwide lack of recreational services for the handicapped include little or no budgeting, lack of staff, orientation toward mass programs, the costliness of programs for the handicapped, architectural barriers, the expensiveness of transportation, accident and liability insurance problems, and the severe physical disability of handicapped individuals. However, these obstacles are being surmounted, and this process can be accelerated through elimination of negative attitudes, adequate education and training, improved techniques and methods, and promotion of a dynamic community public relations program. (No refs.)
*S. Glinsky.*

State University
Farmingdale, New York 11735

2829 O'MORROW, GERALD S. The status of recreation for handicapped children in institutions. In: American Association for Health, Physical Education and Recreation; & the National Recreation and Park Association. *Physical Education and Recreation for Handicapped Children--Proceedings of a Study Conference on Research and Demonstration Needs*. Washington, D.C. 1969, p. 29-35.

Recreation for handicapped children in institutions is in a generally weak condition in terms of programs, facilities, and research, and requires serious evaluation and improvement. Replies to questionnaires directed to 40 institutions as well as to state level recreation directors revealed a surprising dearth of programs or progress in program improvement. Further, the number of journals devoted to recreation for the handicapped is meager. Four recommended objectives for recreation for the handicapped are a sound pedagogic structuring of activities based on acceptance of the child as a human being, a multidisciplinary approach recognizing the child as a complex whole, recreation counseling for children prior to release from the institution, and the utilization of community resources while the child is still an institution resident. Research in recreation for the handicapped suffers from a lack of criteria for evaluating the degree of handicap and for measuring the degree of participation in activities, and from an improper focus upon analysis of activities rather than the child's relation with others. (No refs.)
*S. Glinsky.*

Indiana State University
Terre Haute, Indiana 47809

2830 WILSON, GEORGE T. The status of recreation for the handicapped--School centered. In: American Association for

Health, Physical Education and Recreation; & the National Recreation and Park Association. *Physical Education and Recreation for Handicapped Children--Proceedings of a Study Conference on Research and Demonstration Needs*. Washington, D.C., 1969, p. 35-37.

The implementation of truly school-centered recreation for the handicapped is far from actual realization, despite the articulation of the concept as early as 1912. As of 1967, the majority of school-centered programs served 48,263 children in all disability categories and were held in special resident or day schools or in connection with exceptional education classes. Recreation is, in effect, education, and a sound rationale calls for multi-sensory input through every kind of human activity, which results in whole child improvement in the competencies of mobility, manual skills, language, social relations and self-image. The task of research is to find and develop instruments to measure competency improvements. Programs will be upgraded through evaluation by the children themselves, staff and outside sources. School-centered recreation must accommodate all handicapped children, overcome fears and related problems, and actively pursue a vigorous, community-oriented educational program. (No refs.) - *S. Glinsky*.

Milwaukee Public Schools
Milwaukee, Wisconsin 53208

2831 FREEBERG, WILLIAM H. Research--Recreational camping for all handicapped. In: American Association for Health, Physical Education and Recreation; & the National Recreation and Park Association. *Physical Education and Recreation for Handicapped Children--Proceedings of a Study Conference on Research and Demonstration Needs*. Washington, D.C., 1969, p. 37-43.

As recreational camping for the handicapped increases, more exact research procedures for evaluating the benefits of these activities must be devised. Research prior to 1960 exhibits many deficiencies in numbers, scope, approaches, researcher attitudes, and evaluation criteria. Present empirical evidence confirms that recreational camping is valuable in the education, rehabilitation, recreation, and social life of the handicapped. Several recent studies demonstrate the sophistication needed for effective investigation and can act as research models. Recommendations for the future include encouragement of research by professional organizations, the establishment of an inter-agency and interdisciplinary research center, and establishment of a research center similar to the National Institute of Health. (No refs.) - *S. Glinsky*.

Southern Illinois University
Carbondale, Illinois 62903

2832 Nature playground at Dixon. *ICRH Newsletter*, 4(3):3, 1970.

Dixon State School (Illinois) has 2 MR playgrounds constructed of inexpensive, natural materials. The purpose of the playground equipment is to develop coordination and physical skill in young and adult MRs through the stimulus of fun. Playground units include railroad ties arranged in step fashion at varying heights, logs over ravines, felled trees, and a house bridge roofed to the ground. Such playgrounds represent an imaginative, low-cost answer to the pressing need for playgrounds. (No refs.) - *S. Glinsky*.

2833 San Francisco has "model recreation program." *ICRH Newsletter*, 4(6):1,4, 1970.

Now in its 18th year, the San Francisco Recreation Center for the Handicapped operates one of the largest and most comprehensive programs in the nation. The center conducts year-round activities for more than 550 Bay Area MRs and physically handicapped of all ages. More than 20 full-time recreation professionals supervise over 15,000 program hours and 7,000 volunteer hours per month. Extensive ocean-side facilities and a camp permit the center to offer a multitude of activities keyed to individual needs in the areas of day and resident camping, drama, music, arts and crafts, vocational skills, socialization programs, physical education, and other areas. Twelve buses provide transportation for the center's participants. The diversity of the program is illustrated especially in the wide range of activities offered to teenagers and SMRs. (No refs.) *S. Glinsky*.

2834 Soccer is popular activity at Pineland, Maine. *ICRH Newsletter*, 4(3):2, 1970.

Soccer has been successfully incorporated into the athletic program for MRs and emotionally disturbed at Pineland Hospital and Training Center in Pownal, Maine. Approximately 25 youths between ages 11 and 18 participate, and skill levels have advanced enough to enable scheduling of games with surrounding junior high schools. The soccer program is offered in addition to other



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competitive sports (such as basketball, softball, and badminton) and has resulted in increased coordination and physical fitness. (No refs.) - *S. Glinsky.*

2835 MacMANN, SANDRA. Camping success at Sonoma. *ICRH Newsletter,* 4(8):2, 1970.

For several years a volunteer group has provided a successful summer camping experience for approximately half of the MRs and physically handicapped in Sonoma State Hospital, California. The camp now offers 13 weeks of overnight camping and 5 weeks of day camping to approximately 1,360 individuals, including wheelchair patients. Six counselors supervise 5 campers each and oversee programed and free activities (such as arts and crafts, nature crafts, horseback riding, fishing, hiking, and competitive sports). (No refs.) - *S. Glinsky.*

Sonoma State Hospital
Eldridge, California

2836 Kentucky's mobile unit is spreading the word. *ICRH Newsletter,* 4(8):1,4, 1970.

Under federal funding a private mobile unit in Kentucky disseminates information to the entire state regarding recreation for the handicapped. In existence for a year and a half, the unit has covered over 28,000 miles in reaching more than 2,000 persons. The project's objectives include propagation of new information on MR recreation and physical education programs, providing training sessions, acting as an exchange forum for new ideas in the field, opening up lines of communication between professional and lay persons, and interesting both individuals and communities in MR work in recreation and physical education. The pilot project has proved to be an effective method of keeping people abreast of the latest developments in the field. (No refs.) - *S. Glinsky.*

2837 THOMPSON, LYNN. Recreation therapist tells of roller skating program. *ICRH Newsletter,* 4(7):1, 1970.

A roller skating therapy program for 45 SMRs was developed at a government MR institution in Canada. Instruction proceeded on a step-by-step basis with constant encouragement until practically all the MRs could skate independently. The sport provided the patients with enjoyment, exercise, a sense of accomplishment, and a community-oriented recreational skill. The program confirms the value of this activity in recreation therapy and will be continued. (No refs.) - *S. Glinsky.*

Tranquille School
Kamloops, British Columbia, Canada

2838 UNRUH, JOHN F. Perfect crawling and creeping. *Challenge,* 5(4):1,4-5, 1970.

A regular program of crawling and creeping, when combined with developmental activities to improve gross coordination, develops a strong neurological foundation for MRs. Perfect crawling and creeping involves forward movement in a cross pattern manner under any variety of conditions (such as stop and start and slow and fast) and is done automatically and with perfect coordination. Instructional procedures should include stimulation, active demonstration or kinesthetic assistance, auditory and visual cues, and a step-by-step approach which assures success. Developmental activities are also an integral part of the program. The values of perfect crawling and creeping are increased muscular strength and endurance, stimulation of vestibular function aiding balance, and strengthening of basic motor abilities. (No refs.) - *S. Glinsky.*

Institute for the Rehabilitation of the Brain Injured
Media, Pennsylvania

2839 EDSON, TOM. Fun tunnel. *Challenge,* 6(2):6,7. 1970.

The fun tunnel is a valuable new tool in educating MRs. With its pleasantly decorated interior the crawl tunnel provides a novel motivating environment for the development of various skills and attitudes. Activities developed for the tunnel are the forward and backward crawl, rolling and catching a ball, the dog walk and other mimetic activities, and hopping and jumping. Additional pieces of equipment may be added (such as balance beams, trampolets, and fences) to motivate children to crawl, perform various sequences, and achieve progress while avoiding learning plateaus. The tunnel's benefits include development of controlled movements in hyperactive children, overall improved motivation of and communication with MRs, growth in self-confidence and physical self-awareness, and an increase of attention span due to the blocking out of distractions during activity performance. (No refs.) - *S. Glinsky.*

Riverside County School
4015 Lemon Street
Riverside, California 92502

2840 SCHILD, RICHARD. The Ranch. *Challenge*, 6(2):3-5, 1970.

A new program has been initiated at the Ranch, a recreation and rehabilitation center in a farm setting, to develop physical fitness, motor abilities, and sports skills in MRs. The 45 boys in the program participate in agility course exercises and a competitive sports program including basketball, volleyball, shuffleboard, wrestling, touch football. Constant evaluation is made of individual progress in the areas of gross and fine motor-skills, general physical improvement, increased self-confidence and self-motivation, behavioral changes, transfer of physical skills to work training, and development of team effort and competitive spirit. Counseling of parents and field-day exhibitions complete the program, which tailors physical activities to individual needs to promote a better self-image, work attitude, and peer and authority relations. (No refs.) - *S. Glinsky*.

University of Wisconsin
Milwaukee, Wisconsin

2841 BONNER, JAMES S.; & GRAEFF, RICHARD D. Summer program for handicapped. *Challenge*, 4(5):8-9, 1969.

A special summer program in Muskegon County (Michigan) provided experiences designed to remedy a lack of continuity in the regular year special education classes for MRs. The program was oriented around activities inducing children to come to school and focused on fine arts enrichment, recreation activities, some academic work, and other enrichment experiences. These experiences centered around: a nearby 2-week, fine-arts summer camp; visits to various interesting activities in the surrounding area; and the recreation facilities of a large public park. A staff of 35 (composed of teachers, therapists, psychologists, social workers, teacher aides, and various consultants) formulated a team approach to serving 225 MRs. Teachers adopted an experimental, instant reward, non-graded evaluational approach, which resulted in considerable gains, such as a low incidence of disciplinary problems. The success of the team approach encouraged plans for a broader program for the following year to improve both the quality and intensity of the experiences. (No refs.) - *S. Glinsky*.

Marquette School
Muskegon, Michigan

2842 RAYMONDJACK, JIM. Camp Lotsafun. *Challenge*, 4(5):4-5, 1969.

A 7-week summer day-camp for MRs, Camp Lotsafun, served a total of 89 campers (approximately 49/wk) who represented the 4 learning disability types of TMRs, EMRs, perceptually handicapped, and emotionally disturbed. Activities centered around a different theme each week and included field trips, swimming, gymnasium play, fishing, arts and crafts, reading and participation in a play, singing and instrument playing, and the acquisition of nature and camping skills. The program's success was reflected in the children's desire to return to camp as many weeks as possible, individual behavior improvement, and the children's getting acquainted with each other, which facilitated entry into formal academic classes afterward. (No refs.) - *S. Glinsky*.

Lester B. Foreman Area Educational Center
Fairport, New York

2843 GROVE, FRANCES A.; & KEERAN, CHARLES V., JR. Teaching the severely retarded to use playground equipment. *Challenge*, 5(1): 1,6-7, 1969.

The goal of an SMR therapeutic recreational program involving educational toys and playground equipment was motivation of the patients to use playground equipment effectively through enjoyment of the activities. Appropriate equipment included tilt or regular merry-go-rounds, swing sets, simple climbers, tunnels, and 2 types of slides with a modified ladder. Procedures and techniques employed were personal direction of the children by recreation therapists, psychiatric technicians, and attendants, step-by-step instructions and assistance, much personal attention with incentive rewards, and the maintenance of checksheets on individual progress on individual pieces of equipment. The results demonstrated a higher percentage of SMRs using equipment away from their wards, greater general alertness as well as voluntary participation in activities, and application of skills learned on the playground to other situations. (No refs.) - *S. Glinsky*.

Pacific State Hospital
Pomona, California

2844 GOODWIN, LANE A. Gladly would they learn and gladly teach. *Challenge*, 6(1):1,3, 1970.

Students were recruited as teachers in a University of Utah physical activity-recreation

activity program for MRs during the 1969-70 school year. Volunteers and students majoring in special education, recreation, or physical education taught 50 MRs 1 morning/week for the entire year. Two doctoral students supervised the program, which was designed to involve the MRs in play activities and make the instructors aware of the added potential of play as a means to an end. Each 2-hour session was divided between aquatic activities and gymnastic activities. The latter stressed work with rhythms and apparatuses. The accomplishments of the programs for the MRs included improved physical skill and motor ability, expanded vocabulary, color recognition, space and time orientation, better self-images, and more acceptable behavior patterns. The vigorous programs maintained the children's interest and brought advancement in all the MRs. (No refs.) - *S. Glinsky.*

Wisconsin State University
La Crosse, Wisconsin

2845 FRIED, MURRAY C. Organization + interest + involvement + innovation + facilities: Ingredients for a successful camp. *Challenge,* 6(1):6-8, 1970.

The summer day camp of the Association for the Help of Retarded Children, Nassau County Chapter, New York, which originally serviced 35 MRs 20 years ago, now enrolls 400 aged 5 to 21 years. The purpose is to provide recreational opportunities for MRs, train and interest both young adults and elementary school teachers in MR work, and broaden the experiences of teachers by means of the counselor-camper relationship. The success enjoyed by the program derives from: a well-screened staff; their constant, deep, and enthusiastic involvement with the MRs; a junior counselor program; well-organized individual and team activities (such as arts and crafts, swimming, dance and calisthenics); innovatively designed playgrounds; and a camaraderie between staff and students. (No refs.) - *S. Glinsky.*

189 Wheatley Road
Brookville, New York

2846 Over and under--Up and down--In and out. *Challenge,* 5(5):4-5, 1970.

At the University of New Mexico, MR playground activities are observed to determine the equipment best suited for MRs--approximately 600 each week use various types of equipment including a climbing apparatus, an outdoor gymnasium, horizontal bars, and a 20 foot swaying bridge. Observations by students and staff members result in intensive motor skill training for the MRs, various equipment modifications, and repeated observations. Peer group relationship changes are also monitored. All equipment factors with a possible bearing on improved MR skills and behavior are analyzed constantly, including the color, location, height, and complexity of equipment. (No refs.) - *S. Glinsky.*

## FAMILY

2847 BIRENBAUM, ARNOLD. On managing a courtesy stigma. *Journal of Health and Social Behavior,* 11(3):196-206, 1970.

The adaptations of mothers of MR children, an outstanding example of persons with courtesy stigmas attempting to maintain a normal-appearing life, were studied in 103 women, a majority of whose children were moderately retarded and lived at home. The mothers were drawn randomly from an MR agency listing in a large city; their socioeconomic status was lower middle or working class. The interviews investigated how the mothers learned of their child's MR, their perspective on the child, the extent of interaction with others similarly situated, the condition of the child and background characteristics of the mother and family. The results indicated alteration of the mother's relation to the community, the possibility of continued participation in conventional social life under certain conditions, the recognition of the primacy of conventional family norms despite the MR member, and an increasing uncertainty in family outlook as the MR be-

came older. The career of an MR courtesy stigma bearer involves adopting different strategies at different points and depends largely upon a style of life being offered for acceptance and enforced by the community. (8 refs.) - *S. Glinsky.*

Wheaton College
Wheaton, Illinois

2848 BICKNELL, JOAN. A place in the family. *Mental Health*, Winter, p.5-7, 1969.

Parents of a handicapped child who wish to adopt should be considered by adoption agencies if they have a happy marriage, a stable financial background, and no history of serious illness in either themselves or their relatives. Many adoption agencies feel that a MR child creates insoluble difficulties within the home and will adversely affect a normal child who is placed there. Some agencies have hinted that, after the MR is placed in residential care, the parents could then be considered as prospective parents. Essentially, this is exchanging an MR child for a normal one and is certain to create more guilt and anxiety within the parents in addition to harming the adopted child and the displaced child. Parents who are able to include their handicapped child as an equal member of the family and who are otherwise suitable as adoptive parents should not be denied the opportunity of adopting. Agencies should re-examine policies which offer no exceptions or compromises. (No refs.) - *C. L. Pranitch.*

No address.

2849 PINKERTON, PHILIP. Parental acceptance of the handicapped child. *Developmental Medicine and Child Neurology*, 12(2): 207-212, 1970.

Parental cooperation and realistic acceptance of their child's disability are crucial in achieving optimum management of the handicapped child. Militating against disability acceptance are various parental attitudes: including overt denial or rejection of diagnosis, intellectual insight without emotional acceptance, a sense of impotence, over-protection or emotional smothering of the child, a feeling of stigma, helpless anger, ambivalence or negatively charged attitudes, and self-blame. Counsellors must combat these attitudes by listening empathically to parental feelings and questions, providing sympathetic explanations, promoting a natural approach to the child, and allowing the parents adequate time for the unpalatable truth to register. By voicing their fears and compromising with reality, parents can come to terms with their child's disability. (6 refs.) - *B. Berman.*

Alder Hey Children's Hospital
Eaton Road, Liverpool, England

2850 CARR, JANET. Mongolism: Telling the parents. *Developmental Medicine and Child Neurology*, 12(2):213-221, 1970.

Fifty-six percent of 46 mothers of mongol babies preferred to be told early of their baby's condition and could accept the facts when told honestly and sympathetically. Sixty percent of the mothers had been told by the time the baby was 1 month old, and 70% of the babies were 6 months old or less when the first inquiry was made (mothers and children were living at home). More than half of the mothers thought they had been told at the right time (highest proportion of satisfied mothers between 5 days and 1 month); 16 preferred earlier knowledge, 5 later. Those preferring earlier awareness thought concealment did greater harm; the 5 who preferred postponement said they needed more time to adjust. In 10 instances, the parents made their own discovery of the child's condition. Eighty-three percent experienced shock, even when they had noticed something was wrong. Sixty percent were satisfied with how they were told; few showed resentment. How the knowledge is conveyed appears to be of paramount importance. (8 refs.) - *B. Berman.*

Institute of Education
57 Gordon Square
London, England

2851 LINDER, RALPH. Mothers of disabled children--The value of weekly group meetings. *Developmental Medicine and Child Neurology*, 12(2):202-206, 1970.

Weekly meetings of 5 mothers of disabled children (muscular dystrophy, cerebral palsy, and congenital cardiac anomaly) proved valuable by providing the mothers with anxiety relief, guidance, and a significant reference point in their lives. Stages in group adjustment were introductions and tearful responses to mutual problems, freer discussion of their children's problems, and greater interpersonal exchange. An unanticipated dividend was the pleasure experienced by the children in the attention of sensitive baby-sitters. These mothers are now planning similar contacts with other parents of afflicted children. (No refs.) - *B. Berman.*

Montefiore Hospital and Medical Center
Bronx, New York

2852 CARR, JANET. Handicapped children--counselling the parents. *Developmental Medicine and Child Neurology*, 12(2):230-231, 1970. (Annotation)

Counselling parents of handicapped children should be done sympathetically and may follow 3 stages: when first informed of the disability, a follow-up, and when difficulties with children are experienced. Early diagnosis of disability facilitates acceptance by parents who, generally, experience anxiety when told about their handicapped child, and go through such phases as acceptance or rejection, over-protection, mourning, helping the child, and helping other children. Group therapy for parents, whose behavior may be determined by socio-cultural pressures or emotional stability, may provide relaxation, acceptance of reality, and resourcefulness in meeting specific adjustment problems. (5 refs.) - *B. Berman.*

University of London Institute of Education
London, England

2853 SLAUGHTER, JOANNA. A chance to adjust. *Mental Health*, (Winter):10-13, 1970.

Parents of MR children need time to readjust their lives. More than anything else, parents want to understand their MR and do everything they can to develop his potential. Most parents, assailed by guilt feelings, fear that their normal children will suffer socially from the presence of the MR in the family. Often families with MRs lose friends, either because they are tied down at home or through their own sensitivity. Local groups of parents with MRs can be a stabilizing influence. Because of the MR's dependence and irreversible condition, parents need practical help as well as sympathy. One of the most stressing problems parents face is planning for the future of their MR after their death. (No refs.) - *C. L. Pranitch.*

No address

## PERSONNEL

2854 KAMM, ALFRED. Financial aid for teachers of the retarded. *Mental Retardation in Illinois*, 3(2):25-26, 1969.

Illinois' recent mandatory law to provide educational services for all handicapped children in the state has increased the need for teachers of the MR--particularly TMRs. Teacher shortages in this field are compounded by increased numbers of day care facilities, sheltered workshops, and classes in state hospitals. Moreover, school programs are reaching an ever-increasing number of children. Losses of special education teachers who leave the field are only partly compensated by older women returning to work and by trained persons transferring from other states. Illinois has many kinds of financial aids for retraining, including graduate and undergraduate study, which are available to persons wishing to specialize in MR. (1 ref.) - *J. Moody.*

Office of the Superintendent of Public Instruction
Springfield, Illinois

2855 BALL, EDITH L. Academic preparation for therapeutic recreation personnel. *Therapeutic Recreation Journal*, 2(4):13-19, 1968.

The levels of therapeutic recreation functions and personnel include: directors who administer an entire recreational service; supervisors who plan and produce specific recreational programs; leaders who implement programs by conducting or teaching the activities; and support personnel or aides who assist the leaders, prepare materials, operate equipment such as film projectors, and do clerical and maintenance work. Academic preparation for aides should be a high school education plus short-term or on-the-job training in specific skills. For leaders, acceptable educational background is a baccalaureate degree with a major in any of a variety of areas. The Recreation Education Accreditation Project's undergraduate curriculum in recreation education should provide adequate preparation for supervisors. The Project's core program should be followed in obtaining graduate education at the master's level for the person

who is to direct therapeutic recreational programs. (5 refs.) - *J. Moody.*

No address.

2856 HOOG, JOSEF. Professional standards for quality patient care. *Physical Therapy,* 49(12):1364-1368, 1969.

To identify and develop objective standards for quality patient care, such care was divided into 5 components: patient evaluation, treatment planning, implementation of the treatment plan, interpersonal relationships, and effective communication. The forms given for patient evaluation and treatment planning can be compared with standards in appraising a physical therapist's professional competence. Minimum data requirements for patient evaluation are history, complaints (localization), range of motion, and manual muscle testing. In developing a treatment plan, the therapist should consider exercises or activities that are within the patient's physical capacity, improve strength or range of motion, can be practiced at home or in the nursing unit, maintain strength and/or range of motion of uninvolved body parts, and improve functional independence. Additional or more definitive tests, self-care activities, modifications of the treatment plan, services of hospital or community social service agencies, and the construction of temporary braces or training prostheses should also be taken into account. Successful implementation of a treatment plan depends on the physical therapist's treatment techniques and on his ability to teach the patient the exercises or activities that will result in achievement of the treatment goal. (3 refs.) - *J. Moody.*

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San Francisco, California 94118

2857 PRABHU, G. G. Professional training in India in the sphere of mental retardation. *Indian Journal of Mental Retardation,* 2(2):98-107, 1969.

MR is misunderstood and grossly neglected in India today, and no improvements in the situation are foreseen for the near future. Disinterest in the education and care of MRs is not so much a result of indifference to the field of MR as it is a result of exaggerated concern with the tasks of national reconstruction. The quality and quantity of professional tests for MRs in India is extremely limited, and attempts to review and evaluate research on MR in the country have been hindered by lack of available studies. Professional personnel dealing with MRs frequently cite neglect and apathy on the part of the state and family but never question their own adequacy to treat patients. General practitioners as well as specialists in pediatrics, neurology, and otolaryngology are often unprepared to deal with aspects of MR outside of their own particular field of interest. While clinical psychology as a profession grew out of attempts to identify, educate, and train MRs, students in this specialty today get very limited exposure to MR. Occupational therapists and nurses often receive better training than personnel who are not in auxiliary roles. (14 refs.) - *B. J. Grylack.*

All India Institute of Medical Sciences
New Delhi-16, India

2858 DECKER, ROBERT M. The educational preparation and professional identity of personnel providing recreation services for mentally retarded in residential centers. *Therapeutic Recreation Journal,* 3(3):33-36, 1969.

A recent study revealed that, of 1,107 people employed to conduct recreation programs in 113 MR institutions throughout the United States, 190 held Bachelor degrees, 37 had Masters degrees, 465 had some training above high school, 582 were high school graduates, and 60 did not graduate from high school. Only 24 college graduates held degrees in therapeutic recreation or recreation with an emphasis on therapy, indicating a lack of standards in the field. More than 50% of the degreed people, however, held membership in national professional organizations. There were 148 persons with over 10 years' experience while the largest group (333) had 2-3 years experience. Salaries ranged from $710/month to $375/month for those with Masters degrees and from $523/month to $158/month for those with no college background. (No refs.) - *C. L. Pranitch.*

Utah State Training School
American Fork, Utah 84003

2859 BOEKEL, NORMA. The influence of teacher expectations on the performance of the educable mentally retarded: A teacher's point of view. *Focus on Exceptional Children,* 1(4):6-10, 1969.

Teachers' expectations should be translated into behavior that will result in maximum pupil growth. The most successful teachers possess an optimistic outlook and have confidence in themselves and their students. Teacher strategies that promote positive self-concept and educational growth include: rewarding attempts at self-expression, considering the appropriateness of the activities,

planning activities that will insure success, and exposing pupils to humor. Students should know what is expected of them. Choices should be offered to encourage MR self-responsibility. (No refs.) - *C. L. Pranitch.*

Colorado State College
Greeley, Colorado 80631

2860 GOZALI, JOAV. The expectancy phenomena: Implication for educating the mentally retarded. *Focus on Exceptional Children,* 1(4):1-6, 1969.

Studies by Rosenthal and Jacobson indicate that teachers' expectations partially determine student achievement. In addition, a widely held notion that MRs do as well or better than normals in jobs requiring repetitive monotonous tasks has led Goldstein and Heber to suggest that this concept leads to the placement of MRs in repetitive jobs at the expense of other possible vocational opportunities. Teachers of MRs are likely to be responding to pupils not only in terms of the students' actual abilities but also in terms of their own attitudes and beliefs as to what MRs are like. In guarding against a self-fulfilling prophecy, modification of teachers' training programs and reassessment of one's perceptions of the MR are warranted. Suggested modification in teacher training is in the direction of sensitizing teachers to human beings in general and toward the deviant in particular. Sensitivity training objectives include increased awareness of impact on others, increased interpersonal competence, and increased awareness of group dynamics. Emphasis is also placed on nonverbal communication which is particularly crucial in work with MRs whose verbal skills are limited. Also, it is imperative that one understand the relative contributions of each ability of the MR to the observed unified behavior. (32 refs.) - *C. L. Pranitch.*

University of Wisconsin
Milwaukee, Wisconsin 53211

2861 HELLER, HAROLD W. Newsnotes from the Bureau of Education for the Handicapped. *Education and Training of the Mentally Retarded,* 5(2):91-96, 1970.

Listed are colleges and universities participating in the fellowship and traineeship program in the education of the MR and authorized under the provisions of P.L. 85-926. The programs offered include junior and senior traineeships and Master and Postmaster fellowships. The list does not include those institutions that will be receiving program development grants in MR during the same period. (No refs.) - *C. L. Pranitch.*

U.S. Office of Education
Washington, D.C.

2862 MEYEN, EDWARD L.; & CARR, DONALD L. Teacher-perceived instructional problems: Indicators of training needs of teachers of the educable mentally retarded. *Journal of Special Education,* 4(1):105-114, 1970.

A survey of 481 teachers of the EMR obtained descriptive data on the teachers and their classes, and indicated teacher-perceived difficulties in subject matter and adjunctive areas. Teacher-perceived instructional problems were generalized, and external factors were not an influence. Academic areas, including the preparation of seatwork, were consistently given higher ratings than broad areas tangentially related to curriculum. The highest ranking area of difficulty within an instructional curriculum was social studies. Other areas of difficulty were seatwork, reading methods, reading materials, and reading activities. Areas that presented the least difficulty were the use of psychological information, special subjects, understanding pupil characteristics, and pupil evaluation. (2 refs.) - *J. K. Wyatt.*

University of Iowa
Iowa City, Iowa 52240

2863 NEAL, LARRY L. Project EXTEND-ED: A curriculum model for therapeutic recreation service to handicapped youth. *Therapeutic Recreation Quarterly,* 4(2):41-43, 1970.

The Project EXTEND-ED program at the University of Oregon is a graduate program at the Master's level for the training of professional recreation and physical education personnel to provide services for handicapped youth. This interdisciplinary program emphasizes course work, practicums, and a mandatory 3-month internship. Courses encourage the students to develop an awareness of the value of related disciplines, develop and improve skills in their areas of specialization, and experience practical situations. Other projects in Physical Education and Recreation for the Handicapped which were funded for the 1970-71 school year are at the Universities of Kentucky, Illinois, North Carolina, and Connecticut and at New York University, San Jose State College, and George Washington University. (No refs.) *J. K. Wyatt.*

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